THE INDIAN SUGAR INDUSTRY

(1955-56 ANNUAL)

CALLED OUT

MINISTRY OF FINANCE LIBRARY
No. 10628
Date 20:10:70

Editor:
M. P. GANDHI, M.A., F.R.E.S., F.S.S.
Chairman, All-India Board of Technical Studies in Commerce;
Member, Co-ordinating Committee, All-India Council of Technical Education;
Standing Finance Committee, Indian Council of Agricultural Research;
Indian Central Sugarcane Committee; Bombay State Handloom Board.

Vol. 19 & 20: 344 pages. JULY 1957 Rs. 6.00; By V.P.P. Rs. 7.00

Published by
Messrs. M. P. GANDHI & CO. *(Publishers)*
JAN MANSION, SIR PHEROZSHAH MEHTA ROAD, FORT,
BOMBAY 1.
Telephones: Office: 26-1047. Res.: 73526. Telegrams: "KEEN", Bombay.

264

BUILDING A NEW INDIA

The Central and Western Railways are playing an important role in the country's progress. By the end of the First Five-Year Plan, an increase in passenger carrying capacity of about 8% has been developed over the capacity available at the commencement of the Plan whilst the volume of goods traffic carried has been almost 40% higher.

Expansion programmes to meet the growing transport needs during the Second Five-Year Plan are being developed. With an expenditure of over 225 crores of rupees during
...iod, exclusive of money spent on rolling stock, the
... Western Railways expect to increase by the end
...n their passenger carrying capacity by about 15%
... carrying capacity by about 40% over present

THE
CENTRAL & WESTERN RAILWAYS
WILL DELIVER THE GOODS

338.1736

The only Indispensable & Authoritative Annual Reference Book for the Indian Sugar Industry

THE INDIAN SUGAR INDUSTRY–
(1945-46 ANNUAL)

Vol. XI *Editor:* **Mr. M. P. GANDHI** Date......................

350 Pages: September, 1946. Price Rs. 6/8; V.P.P. Rs. 6/14. Sh. 12.

— CHIEF FEATURES —

- Retrospects and Prospects of the Sugar Industry in India in 1944–45 and 1945–46, and position in world economy.
- "The Sugar Industry at a Glance", containing 46 Statistical Tables re: production and consumption of Sugar, imports and exports, Production of Gur, Canecrop, Duty and Revenue from Sugar, etc.
- The Sugar Industry Protective Duties Continuation Act, extending protection till 31st March, 1947.
- The Sugar and Sugar Products Control Order, 1946, of the Government of India, with the latest amendments, the Gur Control Order, 1946, and other important Notifications.
- *Personnel* of U. P. and Bihar Sugar Control Board, 1945–46.
- Future development of the Industry.
- Necessity of Regulation of Industry on an All-India basis.
- Discussion on Export Prospects, Sugar Control Policy, and Rationing.
- *Personnel* and functions of Central Sugarcane Committee, 1946.
- Capital and Dividend Statement of Sugar Mills. (Latest.)
- *Complete and up-to-date list of Sugar Mills*, working and projected, with addresses of Managing Agents, information regarding crushing capacity etc.

Extract from Reviews of 1944 Annual (Vol. X)

"The International Sugar Journal": March, 1946:

This annual volume is again well stocked with statistical and other information about the Indian Sugar Industry.

Another Authoritative Publication:

"PROBLEMS OF SUGAR INDUSTRY IN INDIA—SCOPE AND PROSPECTS OF REORGANISATION IN POST-WAR PERIOD"

by Mr. M. P. GANDHI

With a foreword by Sir Purshottamdas Thakurdas.

An opinion by Dr. John Matthai, Ex-President, Indian Tariff Board:

"As far as I can judge, your thesis is an able and comprehensive survey of the sugar industry and its problems".

425 Pages. December, 1945. Rs. 12/-

LIBRARY
MADRAS

GANDHI & Co. *(Publishers)*

(Established by Mr. M. P. GANDHI)

Publishers:

The Indian Sugar Industry Annual

The Indian Cotton Textile Industry Annual

Telephone: { Office: 25961 & 24047 / Resi.: 43926 }

Telegrams: KEEN, Bombay.

OTHER NEW & AUTHORITATIVE PUBLICATIONS

Problems of Sugar Industry in India—Scope and Prospects of Re-organisation in Post-war Period.

By: M. P. GANDHI

With a Foreword by Sir Purshotamdas Thakurdas, K.B.E.

Publishers: GANDHI & CO.

425 pages: Rs. 12/-

Foreign Edition: £1

Date of Publication: December, 1945.

The Indian Sugar Industry—1945-46 Annual (Vol. XI)

Editor: M. P. GANDHI

Publishers: GANDHI & CO.

350 pages Rs. 6/8: V.P.P. Rs. 6/14

Foreign Edition: Sh. 12/-

Date of Publication: November, 1946.

Copies of Mr. M. P. Gandhi's various publications and these Annuals will be available, if in stock, at the prices shown below:

SUGAR	Prices of old and new issues
The Indian Sugar Industry—Its Past, Present & Future, by Mr. M. P. Gandhi—with a Foreword by Seth Walchand Hirachand (1934), 382 pages.	Rs. 10/-
The Indian Sugar Industry—1935 Annual, 125 pages, 1936 Annual, 200 pages, 1937 Annual, 250 pages, and 1938 Annual, 300 pages, each.	Rs. 6/-
The Indian Sugar Industry—1939 Annual.—Foreword by Dr. Rajendra Prasad.	Rs. 6/-
The Indian Sugar Industry—1940 Annual.—Foreword by Dr. Syed Mahmud, 1941 Annual with Foreword by Mr. D. R. Sethi, 1942 Annual, 1943 Annual, (350 pages),	Rs. 6/- each
1944 Annual (300 pages), and 1945-46 Annual.	Rs. 6/8/-
COTTON	
How to compete with Foreign Cloth—with a Foreword by Sir P. C. Roy (1931), 130 pages.	Rs. 6/-
The Indian Cotton Textile Industry—Its past, present and future, with which is incorporated the 1937 Annual by Mr. M. P. Gandhi—with a Foreword by Sir Purshotamdas Thakurdas, Kt., C.I.E., M.B.E., 240 pages.	Rs. 6/-
The Indian Cotton Textile Industry—1938 Annual, 175 pages, with a Foreword by Subhas Chandra Bose, The Indian Cotton Textile Industry—1939 Annual with a Foreword by the Hon'ble Dr. K. N. Katju, 1940 Annual with a Foreword by Mr. Nalini Ranjan Sarker, 1941 Annual with a Foreword by Dr. John Matthai, 1942 Annual with a Foreword by Sir C. B. Mehta, each, and 1943 Annual with a foreword by Sir Homi Mody,	Rs. 6/- each
and 1944 Annual (300 pp.), and 1945-46 Annual (400 pp.)	Rs. 5/-

To be had of: **Messrs. Gandhi & Co.** *(Publishers)*

Jan Mansion, Sir Pherozeshah Mehta Road, Bombay.

N.B.—**Book your Advertisement and Copies now for**

1946-47 Indian Cotton Textile Industry Annual: To be Published in March 1947.

1946-47 Indian Sugar Industry Annual: To be Published in April 1947.

1-3-46

The only Authoritative & Indispensable Annual Reference Book for the Indian Cotton Textile Industry

The Indian Cotton Textile Industry– (1945-46 Annual)

Vol. IX *Editor*: Mr. M. P. GANDHI

400 Pages: Rs. 5: V.P.P. Rs. 5/8. July, 1946

CHIEF FEATURES:

- Retrospects and Prospects of the Indian Cotton Textile Industry, during the War period and the near future.
- *Personnel* of the Cotton Textile Board, its various Sub-Committees, and the All-India Handloom Board.
- "The Cotton Industry at a Glance" giving 22 authoritative and up-to-date Statistical Tables relating to the Industry.
- Latest Tariff on Piecegoods and Yarn, and Text of Cotton Yarn and Cloth (Control) Order, 1945 with latest amendments thereto, and Cotton Cloth Movements Control Order, 1945 of and references to other allied Control Orders.
- Position of RAYON in future textile development.
- *Per capita* consumption of piecegoods in India.
- Review of Govt. measures for Control of Prices of Cloth and Yarn.
- Present financial and economic position of the industry.
- Scope of Export and Import of Piecegoods in post-war period.
- Target of further development of industry in post-war period.
- Discussion on Labour Legislation.

THREE APPENDICES:

- An elaborate and up-to-date Appendix regarding cultivation of superior variety of Cotton, Exports of Cotton, Imports of Cotton, Prices of Cotton, Consumption of Cotton in Indian Mills, etc.
- A detailed Appendix regarding present position and future prospects of Handloom Industry.
- *Complete* and *up-to-date* list of Cotton Mills working in India, with names and addresses of Managing Agents, number of Spindles, Looms, etc.

Extracts from Reviews of 1945–46 Annual (Vol. IX):

"Commerce" Bombay: October, 1946.

It will prove to be an invaluable guide to all those who are interested in the Indian Cotton Mill Industry.

"Hindustan Times" New Delhi: October 20, 1946.

The book under review surveys the development of the Cotton Textile Industry during 1945–46 and contains a vast fund of information. It is a handy book of reference dealing with the various aspects of this industry.

: ANOTHER AUTHORITATIVE PUBLICATION :

PROBLEMS OF SUGAR INDUSTRY IN INDIA

By M. P. GANDHI

With a foreword by Sir Purshotamdas Thakurdas

425 Pages. December 1945 Rs. 12/- or £1

L. D. S. LIBRARY MADRAS.

HANDLOOM WEAVING INDUSTRY IN INDIA—

(ITS PAST, PRESENT AND FUTURE)

BY

Shri M. P. GANDHI,

Proprietor, Bombay Commercial Corporation; Bombay Agent, Gujarat Paper Mills Ltd.; Editor, Indian Cotton Textile Industry Annual and Indian Sugar Industry Annual; Honorary Professor in Cotton Economics, Sydenham College of Commerce & Economics, Government of Bombay;

[Formerly, Controller of Supplies, Bengal Circle, Supply Department, Government of India; Secretary, Indian Chamber of Commerce, Calcutta; Secretary, Indian Colliery Owners' Association; Secretary, Indian Sugar Mills Association; Secretary, Federation of Indian Chambers of Commerce & Industry; Secretary, Indian National Committee, International Chamber of Commerce; Chief Commercial Manager, Dalmia Cement Ltd. & Rohtas Industries Ltd.; Head of Credit Department, National City Bank of New York, Calcutta; Director, Indian Sugar Syndicate Ltd.; Member, Bihar Government Labour Enquiry Committee; Member, U. P. & Bihar Joint Power Alcohol Committee; Member, U. P. & Bihar Sugar Control Board; Member, Cottage & Rural Industries Sub-Committee of the National Planning Committee; Member, Advisory Committee, East Indian Railway; Member, Executive Committee, Bengal Textile Institute; Ashburner Prizeman, Bombay University; Examiner in B.Com. Examination of the University of Allahabad, Lucknow, and Bombay.]

To be had of:

GANDHI & CO. (*Publishers*),

JAN MANSION, PHEROZESHAH MEHTA ROAD,

FORT, BOMBAY.

Telephone Nos.
Office: 25961, 24047
Res.: 43926

60 Pages.
Price Re. 1/4/-
V.P. for Re. 1/8/-
August, 1946

Telegrams:
"KEEN", BOMBAY

PREFACE

The Indian Sugar Industry has now reached a very interesting stage in its otherwise chequered career. As is well-known, the industry has shown remarkable progress since the grant of protection to it in 1932, and although it has had a few lean years due to overproduction of sugar, small production of sugar, shortage of cane, diseases in the cane crop, institution of vexed official control, fixation of minimum prices of cane and sugar, short crushing season due to paucity of cane supplies and other raw materials, etc., it has generally done well and has also been responsible for bringing about an amelioration in the condition of cultivators of cane. The area under cane has increased considerably during the last 15 years, and although the yield of cane per acre has not been as large as could be expected, due to various difficulties, it must be stated that the progress in cane cultivation has not been too unsatisfactory. Roughly, over 90 per cent of the cane acreage is now under improved varieties, and therefore on the grounds of quality much is not to be said. In respect of the yield, however, a lot of leeway is yet to be made and we hope that in future concerted measures would be taken for augmenting the yield of cane per acre (thus improving the financial position of the cultivator), in order to reduce the cost of production of cane (and consequently of sugar).

On an average, the yield of cane in India per acre is only about 15 tons, while the average yield in other countries is far higher. In India itself about 100 tons of cane per acre have been grown in the Bombay-Deccan area and on the authority of agricultural experts it is possible to increase the yield to about 45-50 tons per acre all over the country. We hope that the Government of India, as also the various Provincial Governments, will now undertake a comprehensive research work in this sphere in order to increase the yield of cane and sugar per acre, and spend liberally on research work in this direction at an early date. If a sum of Rs. 40,00,000 is spent annually it will work out to only Re. 1 per acre under cane, and such expenditure will confer great advantages on the agriculturist, and indeed also on the industry. We have emphasised this aspect in this year's *Annual* and hope it will receive the serious attention of the Indian Central Sugarcane Committee and the various Provincial Governments.

The future of the sugar industry in India, we are convinced, depends upon the success it attains by undertaking long-term and short-term plans of research which will bring about a reduction in the cost of cultivation. The phenomenal success that was achieved in Java, Philippines, etc. was due to the liberal expenditure on research work in improving the cane crop. This must be done in India now in order to stabilise and develop the industry.

We are also convinced that there will be necessity of further expansion of the sugar industry before long, in order to produce sugar in larger quantities than at present, for meeting our increased requirements. The Sugar

MADRAS.

Panel has also recommended the installation of a few sugar factories for increasing the output of sugar and we hope that the Government of India and the Provincial Governments will take suitable steps for implementing the recommendations of this panel.

We feel that the present opportunity should be properly availed of for a suitable dispersal of the industry all over the country. As is well-known, there is at present a concentration of the sugar factories in the U. P. and Bihar and it is essential that for relieving the strain on the transport services as also for enabling the various undeveloped Provinces to derive benefits from the establishment of this industry, any further expansion of the industry should be outside the U. P. and Bihar, particularly in Bombay, Madras, Bengal, and other Provinces which are areas of deficit production.

Protection to the Sugar Industry must be Continued

The period of the present protection to the industry will expire on the 31st March 1947. It was hoped that it would be possible to conduct a Tariff Enquiry before that date. It does not appear to be possible to do so now, as the hands of the Tariff Board are full up with other enquiries. We, therefore, suggest to the Government of India that an announcement should be made for continuing protection to the industry at the present level for a further period of 3 years, during which time the Tariff Board could conduct an enquiry, as conditions are likely to be normal by the year 1948. We also suggest that in appreciation of the important part played by the industry in the supply of sugar at reasonable prices during the war-period without any attempt at profiteering, Government should take full care to ensure that the industry is allowed to develop on sound lines and in a manner in which the interests of cane-growers and the manufacturers are fully safeguarded.

We do not see any possibility of uneconomic competition from abroad, with the indigenous industry, at any rate, within the next 3 or 4 years, as there is a world shortage of sugar, and the industry in Java, Philippines, etc. has been severely disorganised due to the last World War and it will take some time before these countries are able to produce sugar on the pre-war level. But we hope that in the event of such contingency arising, the National Government will take speedy measures for safeguarding the industry that has developed so magnificently and is of grave national importance.

As observed in an earlier paragraph, it will be necessary for India to increase production of sugar in the country considerably before long; and this, we venture to suggest, can be done without increasing the area under cane, by increasing the yield per acre, and indeed, even with a smaller area under cane by utilising the palm-trees, etc. This question of the scope of optimum production and consumption of sugar in India has been discussed in detail in Mr. M. P. Gandhi's thesis on *Problems of Sugar Industry in India —Scope and Prospects of Reorganisation during the Post-War Period*, (425 pages), with a foreword by Sir Purshotamdas Thakurdas, published in December 1945; and we invite the reader's attention to this.

We regret that, as in the last year, we have not been able to publish this *Annual* as early in 1946 as was expected. The various difficulties of the war-period, the emergence of fresh problems and our desire to pass them under review has been partly responsible for the delay of the publication. Another important cause of the delay has been in getting permission from the Central Government for increasing the meagre quota of pages previously sanctioned under the Paper Control (Economy) Order, for this *Annual*. We are glad that we have succeeded in our efforts and it has been possible for us to publish this year's *Annual* in a larger size as compared with that of the last year. We are thankful to Mr. M. P. Pai, Joint Secretary, Department of Industries & Civil Supplies, for his appreciation of the usefulness of this *Annual* (as also our other *Annual* on the Indian Cotton Textile Industry) and giving us permission for an increase in the number of pages to some extent. We hope that in view of the importance of this publication, we will be allowed to return to the normal size of the 1943 *Annual*, when we publish our 1946–47 *Annual*, if the Paper Control (Economy) Order is still operative. This will enable us to discuss various problems pertaining to the industry at length.

It affords us really great pleasure to note that this *Annual* is continually growing in popularity and that there is an increasing measure of appreciation of the usefulness of this publication, ever since it was first published in 1935. We are, doubtless, happy at the very highly appreciative references made in the press regarding the usefulness of this *Annual* as the only up-to date book of reference containing an authoritative and comprehensive study of the problems before the industry in an unbiassed and critical manner, and giving a lead in making practical suggestions for reform in the industry, from year to year. The *Annual*, we are pleased to find, has also been found to be of great use by the various Departments of the Government, Central as well as Provincial, and the commercial community.

We will consider ourselves amply compensated if this publication succeeds in drawing the pointed attention of all interested in the industry, viz., the Government, the manufacturers, the cultivators, the consumers, and the general public, to the various important problems before the industry, and to the necessity of its reorganisation on carefully planned lines in the years to come.

The importance of the industry in the national economy need hardly be stressed if it is remembered that it has stopped the drain of about Rs. 16 crores per annum, with the cessation of sugar imports, is supporting no less than 20 million agriculturists whose interests are indissolubly linked up with the future of this industry, has provided a channel for investment to indigenous capital estimated at Rs. 33 crores (and promises more), has been responsible for finding employment for no less than 3,500 University men and

1,20,000 labour, skilled and unskilled, and has been responsible for bringing considerable additional income to millions of cultivators as a result of improvement in cane cultivation.

For the sake of ready reference, we have given current important legislative measures pertaining to the industry, and no less than 35 up-to-date statistical tables in an earlier portion of this *Annual*, styled "The Sugar Industry at a Glance" (i-xxxvi). The portion "Do you know?" also contains some useful information.

Appendix I, gives a full and up-to-date list of the sugar Factories in India showing the location, district, the nearest railway station, the daily cane-crushing capacity, and names and addresses, including telegraphic addresses of the Managing Agents or Proprietors.

We take this opportunity of thanking the Director of the Imperial Institute of Sugar Technology, Cawnpore, for the help he has given us at all times. We are thankful to the Cane Commissioners of the U. P. and Bihar and also to the Secretaries of the Indian Sugar Syndicate and the Indian Sugar Mills' Association respectively, for the help they have rendered to us in keeping this publication authoritative and up-to-date, so that it could be made use of safely by any one needing information regarding the industry.

We would be failing in our duty if we did not acknowledge the prompt and willing assistance we have received from Mr. B. B. Singh, I.C.S., Chairman, Sugar Commission, U. P. and Bihar, who has furnished us with much authoritative material on the industry after taking considerable trouble in this behalf. It has helped very much in adding to the value of this *Annual.* We must also acknowledge the unfailing assistance received from the Indian Central Sugarcane Committee, the Directors of Industries, and particularly from Mr. Vishnu Sahay, and later, Mr. N. T. Mone, Sugar Controllers for India (during 1945–46), who have provided us with much valuable information and up-to-date statistics.

We have maintained the same style and *format* in this *Annual* as were introduced by Mr. M. P. Gandhi, the *Editor* of this *Annual*, when the first *Annual* was published in 1935, as it helps the readers, and facilitates their looking for information at a particular place.

Jan Mansion,
Sir Phirozshah Mehta Road,
Fort, Bombay.
Tel.: Office: 25961; 24047
Resce.: 43926.

M. P. GANDHI
Editor, *Indian Sugar Industry Annual*,
For Gandhi & Co. (Publishers).

15th October, 1946.

THE INDIAN SUGAR INDUSTRY—
(1945-46 ANNUAL)

DETAILED CONTENTS

	PAGE
Preface	i–iv
35 *Statistical Tables* in "The Sugar Industry at a Glance" ...	i–xix
Protection Act, Sugar and Gur Control Orders, *Personnel* of Sugarcane Committee, U. P. & Bihar Sugar Commission and Control Board, etc.	xx–xxx
Do You Know That ?	xxxi–xxxii
Latest Sugar Price Schedule, Temporary Excise Duty Ordinance (1946), etc.	xxxiii–xxxiv

The Indian Sugar Industry—1945–46 Annual—A Review of the Sugar Industry in India during the 1944–45, and 1945–46 Seasons, and comments on the 1946–47 Season.

Introductory	1
World's Sugar Production since 1939	2
Increase in Sugar production in India necessary	2
Survey of the general Conditions in 1944–45	3
Transport Position of Cane in 1944–45 in the U.P. and Bihar ...	4
Small production in 1945–46 Season	6
Fourth year of Control	6
Industry reconciled to Controls	6
Rationing in Urban areas and Consumption of Sugar, in 1945–46 ...	6
Chief Features of 1944–45 Season	7
Production of mill-made sugar (in tons) by Provinces in 1943–44 and 1944–45	8
War and Sugar Prices	10
Sugar Industry's Controlled Profits	10
Decrease in Supply of Sugar to the People	12
Restriction on Movement and production of Gur since 1943–44 ...	13
Restriction on Sugar allowed to be carried as Personal Luggage ...	13
Sugar Control instituted in 1942	14
Functioning of Control in 1943–44, 1944–45 and 1945–46 Seasons ...	15
Future Development—Sugar Panel's Recommendations (1946) ...	15
Province-wise allocation of 20 New Factories	16
Sugar and Sugarcane Prices for the Season 1945–46	17
Causes for Decline of Production of Factory Sugar in 1945–46 ...	17
Khandsari prices raised to Rs. 18–8–0 per maund	18
Special prices of sugar in certain areas, in 1945–46	18

	PAGE
Working of the Mills and Duration of the Crushing Season in 1945-46 ...	18
Prospects for 1946-47 Season	19
Higher Minimum Price of Cane in 1946-47 recommended	19
Control on Khandsari recommended	19
Details Regarding the Working of the 1944-45 Season	20
Duration of Cane Crushing and Number of Working Days	20
Quantities of Cane Crushed in Mills in 1944-45	20
Quantity of Sugar Produced in 1943-44 and 1944-45 Seasons ...	21
Details of Cane Crushed and Sugar Produced in Different Provinces during the 1944-45 Season	21
Percentage of Recoveries of Sugar from Cane in 1944-45	22
Sugar Production (Estimates) in the 1945-46 Season	23
Sulphur Supplies and Sugar Production in 1945-46 and 1946-47 ...	23
Sugar Prices in 1945-46	24
Schedule of Sugar Prices for 1945-46	25
Bihar & U.P. Sugar Control Act Extended Upto 30th June 1950 ...	25
Technical Committee set up in U.P. and Bihar to help Factories ...	26
Sugarcane Survey for India, 1945-46	27
Central Sugarcane Committee founded in June 1944	27
Functions of the Indian Central Sugarcane Committee, 1944 ...	27
Finances of the Central Sugarcane Committee	28
Functions of the Indian Central Sugarcane Committee	28
Estimated Production of Sugar in the Season 1945-46	29
Area Under Sugarcane in 1945-46	30
Final Sugarcane Crop Forecast for 1945-46 for Sugar	30
Gur Control Order, 1943, & Its Working in 1943-44, 1944-45 & 1945-46	31
Comments on the Gur Control Order	33
Working of the Gur Control Order During 1944-45	34
Operation of the Gur Control Order During 1945-46	37
Effect of Non-enforcement of Control on Khandsari Sugar—prices in the U. P. in 1945-46	37
Allocation of Gur in 1945-46	38
Withdrawal of Control of Gur in Bombay in 1946	38
Gur Control in U.P. in 1945	39
Production of Sugar by Khandsari and from Gur	40
Definition of Khandsari Sugar	41
Sugar Refined from Gur	43
Production of Sugar and Molasses in India by Gur Refineries ...	44
Distribution of Sugar in India	44
Importance of Sugar Industry in National Economy	44
Consumption of Sugar in India	46
Value of Imports of Sugar and Reduced Revenue from Import Duty ...	46
India Exports a Small Quantity of Sugar	46
Protection to the Industry to Continue till 31st March 1947... ...	47
Protection should be continued for 3 years more	48

	PAGE
Sugar Industry Protection And Consumers' Interests	48
Protection Decidedly an Advantage to the Country	49
Minimum Cane Prices and Production of Sugar in Provinces and States ...	50
A Note on the Sugar Industry in Madras during 1944–45	50
A Note on the Sugar Industry in Mysore during 1944–45	50
A Note on the Sugar Industry in Bombay-Deccan during 1944–45 ...	51
Bombay Sugar and Power Alcohol Sub-Committee, 1946	51
Effect of Grow-More-Food Campaign on Industry in Bombay ...	52
A Note on the Sugar Production in Bengal & Other Areas in 1944–45 ...	54
Molasses and Power Alcohol Production	54
Production of Molasses in India during 1944–45 Season	55
U. P. Power Alcohol Act, 1940 (Act VIII of 1940)	55
Government Dilatory in Encouragement of Power Alcohol Production ...	56
Development of Power Alcohol Industry in India urgently needed ...	56
A Note on the History and Development of Power Alcohol Industry in the United Provinces	57
Report of the Joint Power Alcohol & Molasses Enquiry Committee, 1938	57
The U. P. Power Alcohol Act, 1940	57
The First Unit of Production in Northern India	57
New Units of Production	58
Production at New Distilleries	58
Distribution of Fuel Alcohol	58
Future Development of the Industry: Long-Term Policy	59
Fuel-Alcohol: Short-Term Policy	60
Power Alcohol	60
Cost of Production	60
Transport	61
Molasses Distribution	61
Materials required for Construction and Production	61
Legislation in U. P.	62
U. P. Government's Suggestion for Amendment of Power Alcohol Act ...	62
Power Alcohol in Hyderabad State	63
Power Alcohol in Bombay and Other Areas	63
Power Alcohol in Mysore	63
New Units for Production of Power Alcohol	63
Molasses Control Orders in Provinces	64
No Central Control over Molasses and Effects of Present Control ...	64
Pooling of Molasses by Sugar Syndicate (1946)	65
U. P. Distilleries to produce Power Alcohol	65
Problems of Power Alcohol Plant Erection Location and Size ...	65
New Uses for Molasses—Manufacture of Food Yeast	66
Food Yeast from Molasses	66
Use of Molasses in Land Reclamation	66
New Uses for By-products of Sugar Factories	67
By-products and Auxiliary Industries—Rayon and Plastics	67

PAGE

Confectionery, Biscuit and Canning Industry 67
Law and Legislation During 1945 and 1946 68
Sugar & Sugar Products Control Order, 1946 & Gur Control Order, 1946 68
Protective Duties on Sugar Continued Till 31st March 1947 ... 68
U. P. Sugar Factories Control Rules Amended—Technical Committee appointed for U. P. and Bihar 68
Enquiry into the Present Statement of the Sugar Industry in the U. P. 1945–46 68
Advisory Committees under the Bihar Sugar Factories Act, 1946 ... 69
Temporary Excise Duty on Sugar (Ordinance, 1946) 69
Bihar Sugar Factories Control (Amendment) Act, 1946 69
Compulsory Purchase of Cane through Co-operative Societies ... 69
Control Over Prices of Khandsari Sugar Withdrawn in 1946 ... 70
Need for Increase in Price for Safeguarding Manufacturers' Interests ... 70
None-too-enviable Position of Sugar Companies re: Profits in War-Period 70
Labour Legislation 71
Unrest in Labour in Factories in 1946 71
Capital and Net Block of a few Sugar Companies, and Dividends since 1936 72
Central Control of the Sugar Industry—U.P. Government's Views thereon 73
Sugar Industry—A Big National Asset 74

PART II

Present Problems before the Sugar Industry and Scope of its Development in Future 75
Imperative need for Reorganisation of the Industry 75
Grievously Low Level of Production from Land 75
Utilisation of Water Resources 76
Better Utilisation of Land Needed 76
Improvement in Manuring and seeds 76
Protection from Pests and Diseases 76
Guarantee for Minimum Price of Produce would be Helpful ... 76
Development Plan suggested by Advisory Board of Imperial Council, 1944 77
Peculiarities of Sugarcane growth in India 77
Manuring of Sugarcane 77
Main Problem of reducing Cost of Sugar and Sugarcane 78
Sugarcane—Necessity of Improvement in Cultivation, and in Yield per Acre 79
Extension of Cane Area or Improvement? 80
Encouragement of High Sucrose Cane or Heavy Yielding Varieties? ... 80
Should Cane Prices be fixed on Weight, or should they very according to Varieties and Sucrose Contents? 82
Principal Agricultural Problems of the Industry 83
Dr. Burns' Target for Cane Yield—50 tons per acre 84
Variation in Prices of Different Qualities of Cane suggested ... 84

	PAGE
Increase in Yield of Tonnage and Cheapening Cost by Manuring, Ratooning, etc.	84
Increase in Cane Acreage not necessary—Palm Sugar Possibilities should be Explored	84
Diseases in Cane and Pests must be eradicated	85
Education of Cultivators by Demonstration of Improved Methods ...	86
Improvements in Cane Crop Essential	86
Valuable Educational Effect of Cane-crop	87
Imperial Council's Valuable Work for Sugar Industry taken up by the Indian Central Sugarcane Committee from 1944	87
Resume of Work of the Indian Central Sugarcane Committee from November 1944 to 31st March 1946	88
Improvement in Yield Possible in India	89
Ratooning and its utility	90
Rotations	91
High Cane Prices and Position of the Industry in U.P. and Bihar ...	91
All-India Angle Essential in the Development of the Industry ...	91
A Note Re: Working of the Cane Development Department in the U. P. During 1944-45	92
Working of the Cane Development Department in the U.P. during 1944-45	93
Distribution of Seed	93
Distribution of Manure	94
Distribution of Implements	94
Weather Conditions	94
Insects, Pests and Diseases	94
Factories and Crush	94
Cane Co-operative Societies	94
Marketing of Cane	95
Seed Store	95
Rural Development Activities	95
Cane Price	95
A Short Resume of the work on Sugarcane carried out at the Central Sugarcane Research Station, Shahjahanpur, in 1944-45... ...	96
Varietal	96
Agronomical	96
Botanical	97
Chemical	97
Physiological	97
Mycological	98
Statistical	98
Entemological	99
Soil Science	99
Cane Development in Bihar in 1944-45	99
(a) Agricultural—Varietal	100
(b) Manurial	100

	PAGE
(c) Miscellaneous	100
Cane Growers' Co-operative Societies in Bihar in 1944–45	100
Paramount need for Research Work Emphasised—Work before the Sugarcane Committee	101
Central Sugarcane Committee to Undertake Research on Development ...	102
Improvement in Cultivation most Essential	102
Work of the Imperial Institute of Sugar Technology, Cawnpore ...	103
Cost of Cultivation of Cane and Fair Price of Cane	103
Marketing of Sugar—Report Published in 1943	104
Factories Definitely Prefer Gate-cane to Rail-borne Cane	104
By-Product Industries	104
Problem of Marketing Sugar in India	104
Consumptions in Provinces	105
Qualitative Analysis of Indian Sugar in 1944–45	105
India Sugar Syndicate's Activities in 1945–46	106
Transport and Co-operation of Railways	106
Road Development in Factory Areas and Other Facilities	106
Expenditure on Research and Investigation Benefits All	107
Bihar Labour Enquiry Committee	107
Condition of Labour in Sugar Factories in the U.P. and Bihar ...	107
Future of the Industry bound up with Increasing Yield of Cane ...	109
Subsidiary Industries need Development	109
India Free to Export Sugar	109
Post-war Reconstruction Programme for Sugar Industry	109
Report of the Panel on Sugar, Power Alcohol and Yeast (1945–46) ...	110
Government of India's Statement of Industrial Policy	110
Control on Sugar to continue	110
Long-term and Short-term Planing Policy	111
Some Immediate Problems facing the Industry	111
Sugar Production in the U. K. and Other Countries	112
India—the Biggest Producer in the Empire and the World	112
Proceeds of Cane Cess in the U. P. in 1944–45	113
U.P. Government's Scheme for Improvement of Roads near Factories (1946)	113
Industry's Research Institute at Cawnpore	113
A Brief Note on the Distribution of Gur and its Prices during 1944–45 and 1945–46 Seasons in the U.P.	114
World Production and Consumption of Sugar	114
Condition of Industry in Java none too good	115
Condition of Industry in Philippines, Egypt, Iran and Formosa ...	115
Post-War Planning for Sugar	116
Indian Sugar Industry's Progress must be maintained	116

APPENDIX I

List of Sugar Factories in India	1–32

STATISTICAL TABLES
IN
"THE SUGAR INDUSTRY AT A GLANCE"
(1945-46)

(*Revised up to 31st August, 1946*)

TABLE No. 1

Number of Cane Factories working in India, including States, and Production of Sugar from Cane Factories, Gur Refineries, Khandsari, Net Import of Sugar in British India and Import in Kathiawar Ports during the last 14 years, and estimates for 1945-46 and 1946-47

Year (November-October)	No. of Cane Factories working in India.	Cane Factory Production (November-October)	Sugar Refined from Gur (January-December)	Khandsari (Conjectural estimates) (Nov.-Oct.)	Total Production of Sugar in India (Nov.-Oct.)	Net Imports (Excluding Re-exports) of Sugar in British India (Nov.-Oct.)	Imports of Sugar in Kathiawar Ports (Nov.-Oct.)
		Tons	Tons	Tons	Tons	Tons	Tons
1931-32	32	158,781	69,539	250,000	478,120	438,797	95,678
1932-33	57	290,177	80,106	275,000	645,383	321,081	68,649
1933-34	112	453,965	61,094	200,000	715,059	233,366	87,094
1934-35	130	578,115	39,103	150,000	767,218	197,775	113,364
1935-36	137	932,100	50,067	125,000	1,107,167	86,962	45,218
1936-37	137	1,111,400	19,500	100,000	1,230,900	11,160	12,870
1937-38	136	930,700	16,600	125,000	1,072,300	9,410	12,284
1938-39	139	650,800	14,200	100,000	765,000	254,400	76,819
1939-40	145	1,241,700	31,700	125,000	1,398,400	252,000	85,580
1940-41	148	1,095,400	48,500	125,000	1,268,900	18,778	
1941-42	150	778,100	13,400	150,400	941,900	48,637	
1942-43	150	1,070,700	6,370	117,630	1,294,700	563	
1943-44	151	1,216,400	7,980	80,000	1,304,380	NO INFORMATION	
1944-45*	140	953,500	6,030	80,000	1,039,530		
1945-46	145	966,000	6,000	60,000	1,032,000	(Our estimates)	
1946-47	146	10,00,000	6,000	60,000	1,066,000	(Our estimates)	

**Vide Indian Trade Journal*, p. 289, dated 28th February, 1946 and 20th June, 1946.

TABLE No. 2

Comparative growth of the Sugar Industry in the various Provinces since 1931-32

(*No. of Cane-factories Working*)

Province	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
United Provinces ...	14	33	59	65	67	68	68	69	70	70	70	71	70	67	67
Bihar ...	12	19	33	34	35	33	33	32	32	32	31	31	31	29	29
Punjab & N.W.F.P. ...	1	1	5	6	4	5	3	3	3	4	4	4	2	2	3
Madras ...	2	2	4	8	8	11	8	7	10	11	11	10	12	11	11
Bombay ...	2	1	4	5	6	6	7	7	7	8	10	9	10	10	10
Bengal ...	...	...	2	5	6	6	6	8	9	9	9	8	6	4	7
Orissa ...	...	...	...	...	...	...	2	2	2	2	2	2	2	1	1
Indian States ...	...	...	4	5	9	8	9	11	11	12	13	15	18	16	17
Total for India ...	32	57	112	130	137	137	136	139	145	148	150	150	151	140	145
Burma* ...	1	1	1	2	2	3	2	2	3	3	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)

*Burma excluded from 1936-37 *onwards* from the total for India.
(*a*) No information available since 1941-42.

TABLE No. 3

Number of Sugar Factories in various Provinces, working in 1944-45, Actual quantity of cane crushed, sugar produced and Recovery percentage obtained, etc.

(Official Estimates of the Director, Imperial Institute of Sugar Technology, Cawnpore, published in the Indian Trade Journal, dated 28th February 1946)

Province	No. of Mills Working	Cane Crushed	Sugar	Sugar-cane Recovery per cent 1944–45
		Tons	Tons	
United Provinces	67	5,185,000	528,900	10·20
Bihar	29	1,588,600	169,900	10·69
Punjab & North W. F. P. ...	2	125,100	12,300	9·83
Madras	11	510,400	46,500	9·11
Bombay	10	694,200	74,900	10·79
Bengal	4	123,100	12,000	9·75
Orissa	1	24,400	2,600	10·65
Indian States	16	1,091,600	106,400	9·75
Total ...	140	9,343,300	953,500	10·21

TABLE No. 4

Total, and *per capita* consumption of Sugar and Gur in India*

Year (November–October)	Consumption of Sugar in tons	Official Estimate	Consumption of Gur in tons	*Per Capita Consumption* Sugar	Gur	Total of Sugar and Gur
				lbs. per head	lbs. per head	lbs. per head
1931–32	982,000	"	2,758,000	6·2	17·2	23·4
1932–33	1,006,000	"	3,240,000	6·3	20·2	26·5
1933–34	996,000	"	3,486,000	6·1	21·5	27·6
1934–35	1,059,000	"	3,701,000	6·5	22·6	29·1
1935–36	1,074,000	"	4,101,000	6·5	24·8	31·3
1936–37	1,167,000	"	4,268,000	7·3	26·7	34·0
1937–38	1,159,000	"	3,364,000	7·2	20·9	28·1
1938–39	1,073,000	"	2,131,000	6·6	13·1	19·7
1939–40	1,019,100	"	2,441,000	6·4	18·0	24·4
1940–41	1,100,000	(Our Est.)	3,410,000	6·7	20·6	27·3
1941–42	1,050,000	"	2,829,000	6·0	18·5	24·5
1942–43†	966,000	"	3,567,000	5·9	20·1	26·0
1943–44†	1,086,300	"	3,989,500	6·5	23·8	30·3
1944–45	963,300	"	4,250,000	5·9	24·1	30·0

* Total value of sugar, including gur, produced in the year 1944-45 may be estimated at about Rs. 118·33 crores.

Price calculated at the rate of Rs. 16–4–0 per maund of sugar and Rs. 10–0–0 per maund of gur as the standard of average for the whole season.

Maund 82·2/7 lbs. Sugar 16–4–0 and Gur 12·80

		Tons	Rs. Price	
1944-45	Sugar	9,60,000	44,68,000	@ Rs. 455 per ton.
	Gur	42,50,000	1,49,00,000	
		Total Value Rs.	1,93,68,000	Rs. 193 Crores.

† Our estimates.

TABLE No. 5

Per capita consumption of Sugar in various countries

United Kingdom ...	106	lbs.	per head	Cuba ...	88	lbs.	per head
U.S.A. ...	97	"	"	Java ...	11	"	"
Brazil ...	34	"	"	Japan ...	33	"	"
France ...	52	"	"	Union of South Africa	47	"	"
Australia ...	116	"	"	Netherland ...	64	"	"
Germany ...	52	"	"	India	6 (in addition to 24 lbs. *Gur*)		

TABLE No. 6

Yearly world production, consumption and the carry-over of stocks of Sugar for the last 10 years in thousand tons (Raw Sugar Value)*

(In Thousands of Long Tons)

Crop year (Sept. 1st to Aug. 31st)	Opening Stocks (Sept. 1st)	Production	Consumption	Closing Stocks (Aug. 31st)	Percentage relation of stocks to Consumption
1931-32	12,362	26,431	26,724	12,069	45.2
1932-33	12,069	24,692	26,193	10,568	40.3
1933-34	10,568	26,709	26,287	9,990	38.0
1934-35	9,990	26,191	27,188	8,993	33.1
1935-36	8,993	28,846	29,231	8,608	29.5
1936-37	8,608	30,818	30,549	8,877	29.1
1937-38	8,877	30,967	29,647	10,197	34.4
1938-39	10,197	29,478	29,406	10,269	34.9
1939-40	10,269	30,753	26,551	11,471	38.8
1940-41	...	30,498	...	...	...
1941-42	...	19,211	...	...	...
1942-43	...	17,908	...	...	...
1943-44	...	19,460	...	...	...
1944-45	...	19,443	(Approx.)	...	...

* Figures are in long tons (Long ton=2,240 lbs.), (Metric ton=2,205 lbs.), and (Short ton=2,000 lbs.).

A glance at the last Table in the 1940 Indian Sugar Industry Annual will show that India leads as the *largest sugar producing country in the world*, since 1931.

TABLE No. 7

Average and maximum percentage of recovery of Sugar in factories in India and Java since 1931-32*

Year	*India* Average	*U. P.* Average	*Bihar* Average	*Bombay* Average	*Java* Average	*India* *Maximum*
1931-32	8.89	8.59	9.06	...	10.92	10
1932-33	8.66	8.55	8.60	10.00	11.56	10
1933-34	8.80	9.08	8.32	10.00	12.84	10
1934-35	8.66	8.56	8.79	10.37	12.55	11.10
1935-36	9.29	9.60	8.93	10.47	13.23	11.34
1936-37	9.50	9.65	9.20	10.68	12.77	11.43
1937-38	9.38	9.18	9.58	10.97	11.87	11.63
1938-39	9.29	9.14	9.00	11.29	11.77	12.25
1939-40	9.45	9.37	9.29	10.97	12.23	12.31
1940-41	9.70	9.87	9.86	9.94	...	11.15
1941-42	9.69	9.87	10.35	9.87	...	12.45
1942-43	10.28	10.16	10.93	10.64	...	13.35
1943-44	10.02	9.92	10.53	10.98	...	12.84
1944-45	10.21	10.20	10.69	10.79	...	11.84
1945-46	10.10	10.09	10.57	10.93	...	10.85

* *Vide Indian Trade Journal*, Calcutta, 28th February 1946.

TABLE No. 8

Capacity of factories and duration of crushing season in India*

	Tons	
Average Cane-crushing capacity of Factory (calculated on the basis of tons of cane crushed per day of actual working) in India	517	1934-35
	568	1935-36
	630	1936-37
	660	1937-38
	630	1938-39
	710	1939-40
	690	1940-41
	640	1941-42
	690	1942-43
	708	1943-44
	681	1944-45
Maximum Cane-crushing capacity of Factories per day in India.	2,012	1934-35
	1,807	1935-36
	1,960	1936-37
	2,000	1937-38
	1,850	1938-39
	1,960	1939-40
	1,980	1940-41
	1,800	1941-42
	1,920	1942-43
	1,903	1943-44
	1,940	1944-45

Duration of Cane-crushing Season (October-May)	1933-34 No. of days	1934-35 No. of days	1935-36 No. of days	1936-37 No. of days	1937-38 No. of days	1938-39 No. of days	1939-40 No. of days	1940-41 No. of days	1941-42 No. of days	1942-43 No. of days	1943-44 No. of days	1944-45 No. of days
Mean duration of Cane-crushing season in *All-India* ...	106	104	126	138	112	83	129	113	85	101	117	98
Maximum duration of Cane-crushing season in *All-India* ...	208	172	179	203	181	184	203	264	313	278	255	232
Mean duration of Cane-crushing season in *U. P.* ...	112	107	134	140	124	77.	133	100	78	112	131	98
Mean duration of Cane-crushing season in *Bihar* ...	105	109	4	150	99	79	136	100	54	96	93	78
Mean duration of Cane-crushing season in *"All other Provinces"* ...	84	90	112	138	103	97	119	144	117	89	110	111

* *Vide Indian Trade Journal*, Calcutta, dated 13th September, 1945 and previous issues.

TABLE No. 9

Acreage under Sugar-cane, under improved varieties, production of cane per acre, gross production of Gur, and calculated production of Cane-crop* from 1931-32 to 1945-46

Year	Total acreage under sugar-cane in thousand acres	Acreage under improved varieties in thousand acres	Average cane production per acre (in tons)	Gross production expressed as gur (in thousand tons)	Calculated production of sugar-cane (10-11 factors) (in thousand tons)
1930—31	2,905	817	12.3	3,359	35,780
1931—32	3,076	1,170	14.1	4,116	43,316
1932—33	3,425	1,845	14.9	4,859	51,129
1933—34	3,422	2,295	15.3	5,055	52,455
1934—35	3,602	2,433	15.1	5,292	54,346
1935—36	4,154	3,056	15.3	6,102	61,202
1936—37	4,582	3,452	15.6	6,932	67,322
1937—38	3,869	2,968	15.5	5,579	55,637
1938—39	3,130	2,673	15.0	3,572	35,851
1939—40	3,640	2,893	15.0	4,748	47,632
1940—41	4,598	3,480	15.0	5,794	59,090
1941—42	3,515	......	15.0	4,371	46,030
1942—43	3,600	......	15.0	5,076	......
1943—44	4,234	......	......	5,848	......
1944—45	4,134	......	......	5,422	......
1945—46	3,988†	......	......	......	......

* *Vide Indian Trade Journal.* The yield of *gur* per acre has increased from .80 tons in 1901-02 to 1.47 tons per acre, due to improved varieties of cane.

† *Vide Indian Trade Journal*, 20th December, 1945. (2nd Sugarcane forecast).

TABLE No. 10

Percentage of Cane used under different heads during the years 1932-33 to 1944-45 (November-October)**

—	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38 (Our Est.)	1938-39 (Our Est.)	1939-40 (Our Est.)	1940-41 (Our Est.)	1941-42 (Our Est.)	1942-43 (Our Est.)	1943-44 (Our Est.)	1944-45 (Our Est.)
Cane used in Factories	6.5	9.8	12.3	16.0	17.6	17.8	16.2	27.7	19.1	21.2	25.0	25.0	25.0
Cane equivalent to *gur* used in refineries ...	3.0	2.0	1.2	1.4	0.5	0.5	0.5	0.9	1.4	1.4	1.0	1.0	1.0
Cane used for *gur* manufacture ...	64.7	65.5	66.0	63.8	64.9	62.0	64.0	51.4	57.7	53.4	50.0	50.0	52.0
Cane used for other purposes, including *Khandsari*, Chewing, setts for planting etc. ...	25.8	22.7	20.5	18.8	16.9	19.7	19.3	20.0	21.8	24.0	24.0	24.0	22.0
Total percentage ...	100	100	100	100	100	100	100	100	100	100	100	100	100

** *Vide* Reply in the Council of State to Question No. 39, dated 11th November 1941.

TABLE No. 11

Percentage of Cane crushed in factories to the total Cane-crop in various Provinces*

Season	U. P.*	Bihar*	Bombay	Bengal	Madras	India
1934—35	13.6	30.9	8.0	2.7	5.0	12.3
1935—36	17.1	40.4	11.7	4.8	5.4	16.0
1936—37	17.1	49.3	13.0	5.2	6.0	17.6
1937—38 (Our Est.) ...	18.6	62.3	14.0	......	......	17.8
1938—39	14.5	44.5	......	......	......	19.5
1939—40	25.5	48.4	......	......	......	27.7
1940—41	13.9	29.3	......	......	......	19.1
1941—42	14.6	......	......	......	......	21.2
1942—43	21.9	......	......	......	......	25.0
1943—44	22.3	......	......	......	......	25.0
1944—45	21.6	......	......	......	......	......

* Figures based on Cane Development Department (U.P.) statement showing disposal of cane crop in the U.P. during 1934 to 1942 and on letters from Cane Commissioner, Bihar to Chairman, Sugar Commission, U.P. and Bihar, in 1945 and 1946.

TABLE No. 12

Cost of production of Cane per maund in India

(a) Definite figures are not available. Cost of production varies from Province to Province from annas 0-3-0 to annas 0-7-0 per maund. (*Vide* 1939 Annual.)

(b) Enquiry undertaken by the Imperial Council of Agricultural Research in 1934, is concluded. Reports of cost in various Provinces were published in 1938 and 1939, and also referred to in Tariff Board's Report of 1937.

(c) Cost considerably increased since 1942, due to inflation, and soaring up of general price level.

TABLE No. 13

Estimate of total amount of money paid by Sugar factories to Cane-cultivators and workers, since 1931-32 to 1945-46

Season	Estimated average price per maund of cane in U. P. and Bihar	Estimated amount paid for cane by factories to Cultivators (1)	No. of unskilled workers employed (2)	Estimated amount of money paid to unskilled workers (3)
	Rs. a. p.	Rs.	No.	Rs.
1931—32	0 5 10	1,77,51,000	16,640	998,000
1932—33	0 5 6	3,14,39,000	29,640	1,778,000
1933—34	0 5 6	4,83,98,000	67,200	4,032,000
1934—35	0 5 3	5,97,66,000	78,200	4,680,000
1935—36	0 5 3	8,81,03,000	82,200	4,932,000
1936—37	0 4 5	8,92,19,504	100,000	6,000,000
1937—38	0 5 1	8,57,53,775	100,000	6,000,000
1938—39	0 6 10	8,13,00,988	100,000	6,000,000
1939—40	0 8 5	18,81,09,460	100,000	7,000,000
1940—41	0 4 8	8,96,40,583	100,000	5,650,000
1941—42	0 7 0	6,15,00,000	100,000	4,000,000
1942—43	0 10 0	13,00,00,000	100,000	5,000,000
1943—44	0 12 0	18,00,00,000	100,000	5,500,000
1944—45	0 14 0	26,40,00,000	90,000	6,200,000
1945—46	0 14 0	26,50,00,000	100,000	6,600,000

(1) Based on statistics received from a large number of factories in U. P. and Bihar.

(2) Based on an assumption of an average factory employing about 600 workers.

(3) Based on an estimate of payment of 0-8-0 per day, (upto 1941-42) and on the average working period of the season. After 1941-42, the estimate is on a 25 per cent higher basis.

(4) Dearness and allowances were increased by 50 per cent in 1942-43 and 1943-44.

TABLE No. 14

Import Duties on Sugar in India and Principal Countries in the World

As there have been so many changes due to the war in regard to the duties on sugar in the various countries, we are not giving the full table here. A reference may be made to the 1939 Annual far the import duties on sugar then existing.

The following table gives the duties in India:—

Import Duty on Sugar in India (1945-46):—

Total Import Duty including 20 per cent surcharge (with equivalent excise duty)		Rs.	11-1-7	1/5 per cwt.
	equivalent to	Rs.	7-1-9	6/7 per maund.
Excise Duty on factory sugar *in British India*		Rs.	3-0-0	per cwt.
	equivalent to	Rs.	2-3-3	per maund.

The present import duty will continue till 31st March 1947, and during the latter half of 1946, a further Tariff Board enquiry will be undertaken to decide the quantum of protection thereafter.

TABLE No. 15

Excise Duty and Import Duty on Sugar, Sugar Candy* and Molasses in India

On Sugar per cwt.	Protective Import Duty per cwt.	Additional Revenue Duty	Total Import Duty per cwt. Rs.
From 1st April, 1932 to 31st March, 1934	Rs. 7-4-0	Revenue surcharge @ 25% of protective duty Rs. 1-13-0	9-1-0
From 1st April, 1934 to 27th February, 1937	7-12-0 (0-8-0 being additional margin)	Equivalent excise duty Rs. 1-5 0	9-1-0
(Rs. 1-5-0 Excise Duty on domestic production of factory sugar)			
From 28th February, 1937 (Rs. 2-0-0 Excise Duty on domestic production of factory sugar)	7-4-0	Equivalent excise duty Rs. 2-0-0	9-4-0
From 1st April, 1939 (Rs. 2-0-0 Excise Duty on domestic production of factory sugar)	6-12-0	Equivalent excise duty Rs. 2-0-0	8-12-0
From 1st March, 1940 (Rs. 3-0-0 Excise Duty on domestic production of factory sugar)	6-12-0	Equivalent excise duty Rs. 3-0-0	9-12-0†
From 1st April, 1942 (Rs. 3-0-0 Excise Duty on domestic production of factory sugar)	6-12-0	Revenue surcharge of 20% amounting to Rs. 1-5-7 1/5 and Equivalent excise duty Rs. 3-0-0	11-1-7 1/5‡

* From 20th February 1934, a revenue duty of Rs. 10-8-0 per cwt. was imposed on *sugar candy* in place of Rs. 9-1-0 per cwt. The rate of import duty on *molasses* is 31¼ per cent *ad valorem* since April 1932.

† The import duty of Rs. 11-1-7⅕ per cwt. works out at Rs. 7-1-9 per mound and Rs. 3-0-0 excise duty per cwt. works out at Rs. 2-3-3 per mound.

This importd duty has been continued till 31st March 1947.

‡ Total import duty including surcharge of 20 per cent as from 1st April 1942.

TABLE No. 16

Yield of Revenue from Import Duty on Sugar in India from 1931-32 to 1945-46 (Burma excluded from 1937-38)

Year (April–March)	Yield of Revenue Rs.	Year (April–March)	Yield of Revenue Rs.
1931-32	7,97,63,000	1939-40	3,96,08,000
1932-33	6,84,79,000	1940-41	18,24,000
1933-34	4,72,04,000	1941-42	1,94,000
1934-35	3,81,35,040	1942-43	56,000
1935-36	3,24,16,000	1943-44	4,14,000
1936-37	50,52,000	1944-45	1,000
1937-38	25,33,000	1945-46 (Months) ...	6,000 (Budget Estimates)
1938-39	45,22,000		

TABLE No. 17

Excise Duty on all Sugar produced in British India and Yield of Revenue therefrom from 1935-36 to 1945-46 Fiscal year (April-March)

Amount of duty per cwt.	Yield of Revenue from Excise Duty (in Thousand Rupees)									
	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Khandsari :	47	51	59	146	286	443	157	509	365	174 from April to Feb.
Factory :	25,202	33,097	42,244	24,760	39,011	66,827	48,184	71,941	69,296	62,500 Budget Estimate
Total ...	25,249	33,148	42,303	24,906	39,297	67,270	48,341	72,460	69,661	62,674

TABLE No. 18

Average price of Indian and Imported Sugar in India per maund of 82-2/7 lbs.

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Indian 1st quality Special (Cawnpore market average quotation)(Factory Delivery Basis)	9-0-0	8-4-0	7-0-0	8-8-0	10-12-0	10-8-0	11-0-0	13-0-0	14-8-0	16-0-0 for D24	16-4-0 for D24
Imported Sugar (Calcutta market average quotation)	9-13-0	9-12-0	9-10-0	10-8-0	11- 0-0	11-0-0	...	...	...		

TABLE No. 19

Average Price of Gur per maund in 1940-41, 1941-42, 1942-43 1943-44 and 1944-45

Gur Market	1940-41 (Nov. to Oct.) Rs. a. p.	1941-42 (Nov. to Sept.) Rs. a. p.	1942-43 Nov.-Oct. Rs. a. p.	1943-44 Nov.-Oct. Rs. a. p.	1944-45* Rs. a. p.
Madras ...	3 1 6	4 2 6	9 6 10	9 10 0	9 4 5
Ahmednagar ...	3 6 9	6 5 8	14 14 6	15 9 9	12 4 6 1/4
Lyallpur ...	2 9 2 (No quotation) May, '41	4 0 6 (No quotation) Feb., June, July, August, Sept. '42	10 7 7	10 4 5	10 13 7 5/6
Muzaffarnagar ...	3 0 7	5 13 9	8 15 6	6 12 11	9 7 5 1/4
Meerut ...	2 12 11 (No quotation) August, '41	5 12 10 (No quotation) for March and Sept. '42	9 0 1	7 6 0	8 12 10 1/2
Bhagalpur ...	3 0 1 (No quotation) for Mar. 41	5 10 3 (No quotation) for May, June, July and Sept. '42	11 4 4	8 5 6	8 3 7 2/11
Dacca ...	5 5 4	9 7 7	......	......	26 4 4 1/11

* *Vide* Imperial Institute of Sugar Technology Letter No. 3172/5-7-46.

TABLE No. 20

Approximate Official Estimate of total Carry-over of Stocks of Sugar in India at the beginning of November, since 1931

Year	Tons
1931	32,000
1932	19,000
1933	9,000
1934	30,000
1935	23,000
1936	159,000
1937	211,000
1938	102,000
1939	105,000
1940	390,000
1941	295,000
1942	105,000
1943	133,863
1944	265,802
1945	83,072

TABLE No. 21

Approximate Railway Freight on Sugar-cane in 1943-44

Railway	Kind of Wagon	Average Capacity	Distance	Rate Per Wagon Rs. A. P.
A. B. Railway ...	4 wheeler	160 maunds	35 miles	8 14 0
E. B. Railway ...	4 wheeler	160 maunds	177 miles	27 0 0
E. B. & A. B. Rly. combined ...	4 wheeler	160 maunds	54 miles	17 8 0
O. & T. Railway ...	4 wheeler	270 maunds	55-60 miles	9 0 0
E. I. Railway ...	4 wheeler	480 maunds	39 miles	10 0 0
			up to 50 miles	14 0 0
			up to 100 miles	25 0 0

TABLE No. 22

Statement showing Expenditure on Sugar Research by the Imperial Council of Agricultural Research and Indian Central Sugarcane Committee*

Year	Amount spent or proposed to be spent	Directions in which generally Spent
	Rs.	
1935-36	4,79,088	*Production* and *testing* of new varieties of sugar-cane.
1936-37	3,88,627	
1937-38	3,46,820	*Devising* and *testing* systems of cultivation and manuring
1938-39	3,24,928	
1939-40	3,56,790	Study and combating of insect and fungus pests.
1940-41	3,19,304	
1941-42	3,74,580	Research in use of molasses as manure and cattle. food.
1942-43	3,57,446	
1943-44	4,26,828	Sugar Marketing Survey.
1944-45	4,11,700	Utilisation of Bagasse for the paper, and board industry, Etc., Etc.
1945-46	3,29,900	Research.

* Figures collected from official sources and furnished by Secretary, Imperial Council of Agricultural Research, (*Vide* letter No. F. 66(14)/43D dated 16th January 1945, and No. F. 90(a)/46 dated 21st March, 1946 from the Indian Central Sugarcane Committee, New Delhi).

TABLE No. 23

Estimated Percentage of Gate-cane to the Total Quantity of Cane (i.e. Gate-cane and Rail-borne cane) crushed in Factories in the various Provinces*

Province	1934-35 %	1935-36 %	1936-37 %	1937-38 %	1938-39* %	1939-40† %	1940-41 %	1941-42 % (approx.)	1942-43 % (approx.)	1943-44 % (approx.)	1944-45 % (approx.)
Bihar ...	48	50	58	53	53	53	65	63	70	70	75
United Provinces ...	65	66	68	72	66	62	69	80	85	85	85
Bengal ...	22	26	45	55	54	33	32	52	60	60	60
Punjab ...	...	51	61	69	57	47	55	80	80	80	80
Bombay ...	100	100	100	100	100	99	100	100	100	100	100
Madras ...	...	35	67	71	72	75	67	60	65	65	65

* Compiled by the Indian Sugar Syndicate Ltd. in September 1939.

† Compiled by us from the returns made by factories in 1939-40, 1940-41, 1941-42, 1942-43 1943-44 and 1944-45.

TABLE No. 24

This Table shows the production, consumption and *per capita* consumption of sugar in the different Provinces and Indian States in 1940-41, 1941-42 (1st November to 31st October) and 1942-43. In estimating these figures also, no account has been taken of the differences between opening and closing *invisible stocks and imports* and exports by road. But it is believed that initial and closing invisible stocks do not differ appreciably and that the volume of inter-provincial traffic *in sugar by road* is not great. A better estimate of consumption will, however, be possible if statistics of markets stocks improve.

Production, Consumption and *Per Capita* Consumption of Sugar in the various Provinces and States, during the years 1940-41, 1941-42, and 1942-43 (Nov.-Oct.)

Name of Province	1940—41			1941—42			1942—43		
	Production	Consumption	*Per capita* Consumption	Production	Consumption	*Per capita* Consumption	Production	Consumption	*Per capita* Consumption
	Tons	Tons in (1000)	Lbs.	Tons	Tons in (1000)	Lbs.	Since the introduction of the Sugar Control Order 1942, we understand from the Imperial Institute of Sugar Technology, Cawnpore, that it had not been possible for them to calculate the *per capita* consumption of sugar in the various provinces in India.		
Bengal	64,600	178	6.6	29,400	120	4.5			
Bombay	120,132	260	20.8	113,354	240	19.2			
Madras	67,400	106	4.8	47,448	90	4.1			
Bihar	257,100	69	(a)3.9	122,300	66	(a)3.6			
United Provinces ...	708,592	244	9.8	480,663	159	6.4			
Punjab	51,023	231	15.3	38,120	199	13.1			
C. P. and Berar		47	6.3		37	4.9			
Assam		20	4.4		11	2.4			
Sind and British Baluchistan.		44	19.5		39	17.3			
Orissa		10	...		7	...			
N.-W. F. P.		18	13.3		15	11.1			
Delhi		22	53.7		14	34.2			
Rajputana		48	7.9		60	9.8			
Central India		35	6.8		33	6.4			
Nizam's Territory ...		27	3.7		23	3.2			
Kashmir		3	1.7		4	2.3			
Mysore		14	4.3		15	4.6			
ALL-INDIA		1,376	8.5		1,132	7.0			

(*a*) Includes Orissa also.

TABLE No. 25

Total Production, Import and Export of Molasses in India* for the last 13 years

Year Nov.-Oct.	Production of Molasses in India in Thousand Tons				Imports of Molasses into British India (Tons) Apr.-Mar.	Export of Molasses from British India (including Palmyra and cane jaggery) (Tons) Apr.-Mar.
	From Cane Factory	From Gur Refineries	From Khandsari †	Total †		
1933-34 ...	190	40	209	430	2,401	1,201
1934-35 ...	234	22	150	406	415	1,153
1935-36 ...	337	33	125	495	Nil	1,026
1936-37 ...	406	10	100	516	Nil	24,195
1937-38 ...	349	8	125	482	5	79,167
1938-39 ...	242	6	100	348	2,160	52,676
1939-40 ...	485	7	125	627	2,000	16,000
1940-41 ...	424	32	100	556	......	......
1941-42 ...	293	7	100	400	......	......
1942-43 ...	369	11	100	480	......	......
1943-44 ...	438	2	100	540	......	......
1944-45 ...	328	3	100	431	......	......
1945-46 (Our Est.)	350	3	90	433		

* After 1936-37, statistics regarding Burma are excluded. † Official estimates.

TABLE No. 26

Total value of Sugar Machinery imported in British India from 1932-33 to 1939-40 *

(In Thousands of Rupees)

Source	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
U. K.	91,48	1,95,87	73,60	49,70	68,49	43,16	30,16	......
Other Countries ...	61,63	1,40,51	31,84	16,00	26,66	26,21	31,20	......
	1,53,11	3,36,38	1,05,45	65,70	95,16	69,37	61,36	50,84

* Statistics discontinued after 1939-40.

TABLE No. 27

Calculated Net Production* of Gur in India for direct consumption, from 1931-32 to 1945-46

Year (November—October)	Calculated net Annual Production of *Gur* for direct consumption (in Tons)
1931-32	2,758,000
1932-33	3,240,000
1933-34	3,486,000
1934-35	3,701,000
1935-36	4,101,000
1936-37	4,268,000
1937-38	4,364,000
1938-39	2,131,000
1939-40	2,441,000
1940-41	3,414,000
1941-42	2,829,000
1942-43	3,015,000
1943-44	3,990,000
1944-45	4,205,000
1945-46	3,600,000

The net production of *gur* is calculated by deducting from the total yield of cane expressed in terms of *gur*, and published in the "Final General Memorandum on the production of the Principal Crops in India," by the Director-General, Commercial Intelligence and Statistics, the *gur* equivalent of the cane used for purposes other than *gur* manufacture. *Vide* letter No. 8002/stat., dated 2nd February 1944, from the Director, Imperial Institute of Sugar Technology, Cawnpore, to the Chairman, Sugar Commission, U. P. and Bihar, Cawnpore, for figures 1940-41 to 1942-43.

TABLE No. 28

Cane Factory Production of Sugar in U. P., Bihar and All-India (in Tons) from 1931-32 to 1945-46

Season	U. P.	Bihar	All-India	Total quantity of *cane* crushed all factories in tons
1931-32 ...	66,312	75,091	1,58,581	17,83,000
1932-33 ...	1,40,344	1,28,610	2,90,177	33,50,000
1933-34 ...	2,73,774	1,39,957	4,53,965	51,57,000
1934-35 ...	3,15,600	1,84,038	5,78,115	66,72,000
1935-36 ...	5,30,000	2,50,200	9,32,100	98,01,000
1936-37 ...	6,08,600	3,29,300	11,11,400	1,10,87,000
1937-38 ...	5,31,300	2,25,300	9,30,700	99,16,400
1938-39 ...	3,20,300	61,600	6,50,800	70,04,800
1939-40 ...	6,59,500	3,22,100	12,41,700	1,31,31,700
1940-41 ...	5,13,300	2,46,100	10,95,400	1,12,90,900
1941-42 ...	3,82,900	1,17,300	7,78,100	80,26,300
1942-43 ...	6,12,500	2,37,400	10,70,700	1,04,18,500
1943-44 ...	7,27,100	2,12,400	12,16,400	1,21,37,800
1944-45 ...	5,28,900	1,69,900	9,53,500	93,43,300
1945-46 *(Est.)	5,25,600	1,78,600	9,66,000	95,67,300

**Indian Trade Journal*, 20th June 1946.

TABLE No. 29

1. Price per maund of crystal sugar, for sale ex-factory according to grade from 5th March, 1946*

—	19	20	21	22	23	24	25	26	27	28	29
Grain size.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
A A ...	...	...	...	...	17 0 6	17 2 0	17 4 0	17 5 6	17 7 6	17 9 0	17 11 0
A ...	...	16 8 0	16 10 6	16 12 6	16 14 6	17 0 0	17 2 0	17 3 6	17 5 6	17 7 0	17 9 0
B ...	...	16 5 6	16 8 0	16 10 0	16 12 0	16 13 6	16 15 6	17 1 0	17 3 0	17 4 6	17 6 6
C ...	...	16 3 6	16 6 0	16 8 0	16 10 0	16 11 6	16 13 6	16 15 0	17 1 0	17 2 6	17 4 6
D ...	15 14 0	16 2 0	16 4 6	16 6 6	16 8 6	16 10 0	16 11 6	16 13 6	16 15 6	17 1 0	17 3 0
E ...	15 12 6	16 0 6	16 3 0	16 5 0	16 7 0	16 8 6	16 10 6	16 12 0	16 14 0	16 15 6	17 1 6
F ...	15 11 6	15 15 6	16 2 0	16 4 0	16 6 0	16 7 6	16 9 6	16 11 0	16 13 0	16 14 6	17 0 6
G ...	15 10 6	15 14 6	16 1 0	16 3 0	16 5 0	16 6 6	16 8 6	16 10 0	16 12 0	16 13 6	16 15 6

2. Price per maund of crushed sugar, for sale ex-factory according to grade.

Grade.	Price per maund. Rs. a. p.	Grade.	Price per maund. Rs. a. p.
13	16 15 0	11	16 10 0
12	16 12 0	10	16 8 0

3. Price per maund of refined sugar for sale ex-factory according to grade.

Grain size.	27 Rs. a. p.	28 Rs. a. p.	29 Rs. a. p.
A A	18 1 0	18 3 0	18 5 0
A	17 15 0	18 1 0	18 3 0
B	17 13 0	17 15 0	18 1 0
C	17 11 0	17 13 0	17 15 0
D	17 9 0	17 11 0	17 13 0
E	17 8 0	17 10 0	17 12 0
F	17 7 0	17 9 0	17 11 0
G	17 6 0	17 8 0	17 10 0

Type of Sugar	*Maximum Ex-factory Price.* Per maund
Sugar Candy	Rs. 20 13 0
Bura	„ 18 1 0
Khandsari	„ —

*Government of India Food Department Notification No. 22-SC (4) 46, dated the 5th March, 1946.

TABLE No. 30

Recovery of Sugar from Cane during 1934-35 to 1945-46

Provinces	Recovery of Sugar per cent Cane											
	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46*
U. P. ...	8.56	9.60	9.65	9.18	9.14	9.37	9.87	9.87	10.16	9.92	10.20	10.09
Bihar ...	8.79	8.93	9.20	9.58	9.00	9.29	9.86	10.35	10.93	10.53	10.69	10.53
"All other Provinces" ...	8.77	9.00	9.60	9.77	9.91	9.88	9.34	9.22	9.95	9.94	9.92	10.00
All-India ...	8.66	9.29	9.50	9.38	9.29	9.45	9.70	9.69	10.28	10.02	10.21	10.10

Indian Trade Journal, 20th June 1946.

TABLE No. 31

Production of Sugar directly from Cane in Modern Factories in India, 1929-30 to 1945-46, and Recovery Percentage for Java

Season	Number of Factories producing Sugar direct from cane	Cane crushed	Sugar produced	Percentage Recovery for India	Percentage Recovery for Java
		Tons	Tons		
1929-30 ...	27	989,776	49,768	9.07	11.76
1930-31 ...	29	1,317,248	119,859	9.00	10.92
1931-32 ...	32	1,783,499	158,581	8.89	11.56
1932-33 ...	57	3,350,231	290,177	8.66	12.84
1933-34 ...	112	5,157,373	453,965	8.80	12.55
1934-35 ...	130	6,572,000	578,115	8.66	13.23
1935-36 ...	137	9,801,748	932,100	9.29	12.77
1936-37 ...	137	11,687,200	1,111,400	9.50	11.87
1937-38 ...	136	9,916,400	930,700	9.38	11.77
1938-39 ...	139	7,001,800	650,800	9.29	12.23
1939-40 ...	145	13,131,700	1,241,700	9.45	(Not Available)
1940-41 ...	148	11,290,900	1,095,400	9.70	
1941-42 ...	150	8,026,300	778,100	9.69	
1942-43 ...	150	10,418,000	1,070,700	10.28	
1943-44 ...	151	12,137,800	1,216,400	10.02	
1944-45 ...	140	9,343,300	953,500	10.21	
1945-46 ...	142	9,567,300	956,000 (Est.)	10.00	

TABLE No. 32

Value of imports of Sugar,* Revenue from imports, and Rate of Import Duty on Sugar from 1920-21 to 1945-46

Year April-March	Value of foreign Sugar (net) imported in British India in Lakhs of Rupees*	Revenue from Import Duty on Sugar in Lakhs of Rupees†	Rate of Import Duty
1920-21 ...	1,850	185	10 p.c. *ad valorem*
1921-22 ...	2,750	412	15 p.c. *ad valorem*
1922-23 ...	1,549	487	25 p.c. *ad valorem*
1923-24 ...	1,545	486	" "
1924-25 ...	2,090	578	" "
1925-26 ...	1,520	659	Rs. 4-8-0 per cwt.
1926-27 ...	1,534	744	" "
1927-28 ...	1,450	653	" "
1928-29 ...	1,586	782	" "
1929-30 ...	1,836	846	" "
1930-31 ...	1,047	1,081	Rs. 6-0-0 per cwt.
1931-32 ...	590	798	Rs. 9-1-0 " (Rs. 7-4-0 being protective and Re. 1-13-0 being revenue surcharge from 1st April 1932.)
1932-33 ...	422	685	" "
1933-34 ...	270	472	" "
1934-35 ...	210	381	Rs. 9-1-0 per cwt. (Rs. 7-12-0 being protective & Re. 1-5-0 being equivalent excise duty from 1st April 1934.)
1935-36 ...	190	324	" "
1936-37 ...	23	51	" "
1937-38 ...	18	25	Rs. 9-4-0 per cwt. (Rs. 7-4-0 being protective and Rs. 2-0-0 being equivalent excise duty from 28th February 1937.)
1938-39 ...	45	45	" "
1939-40 ...	331	396	Rs. 8-12-0 per cwt. (Rs. 6-12-0 being protective & Rs. 2-0-0 being equivalent excise duty. (With effect from 1st April 1939.)
1940-41 ...	36	18	Rs. 6-12-0 being protective and Rs. 3-0-0 being equivalent excise duty. (With effect from 1st March 1940.)
1941-42 ...	107	1·9	Rs. 9-12-0 per cwt.
1942-43 ...	...	·5	Rs. 11-1-7 1/5 per cwt. with effect from 1st April 1942 (i.e. including 20% surcharge on ordinary import duty of Rs. 6-12-0) and Rs. 3-0-0 being equivalent excise duty.
1943-44 ...	...	4·1†	
1944-45 ...	...	3·5†	
1945-46 ...			

* Annual statement of sea-borne trade (Burma excluded from 1937-38).

† These figures appear to be too large, looking to imports reported to be negligible. On an enquiry, however, we were informed that they represent duty collected in those years on sugar released from Bond out of stock imported during 1941 and 1942.

TABLE No. 33

Java Sugar Statistics from 1935-36 to 1944-45*

(In Long Tons)

Crop Year	Initial Stock on 1st April	Production	Exports	Local Consumption	Final Stock on 31st Mar.
1935-36 ..	1,585,397	505,528	863,356	285,013	942,556
1936-37 ...	942,556	583,029	975,003	309,449	241,133
1937-38 ...	241,133	1,392,151	1,017,276	306,522	309,486
1938-39 ...	309,486	1,376,824	1,163,809	315,922	206,579
1939-40 ...	206,579	1,550,462	1,214,125	304,740	238,176
1940-41 ...	238,176	1,579,697	837,342	351,828	628,703
1941-42, 1942-43, 1943-44	705,000 (1st March 1943)	2,237,000 (1942, 1943 & 1944)	1,517,000	Total of Exports & Consumption.	1,500,000
1944-45 ... (May)	1,500,000	(Approx.)			

* *Vide International Sugar Journal*, London, May 1946.

TABLE No. 34

An interesting Table regarding *Per Capita* Consumption of Gur and Sugar in certain Rural and Urban Areas* in pre-war period (1937-38)

Name of Province	Gur		Sugar	
	Urban areas (lb.)	Total for the Province (lb.)	Urban areas (lb.)	Total for the Province (lb.)
United Provinces	13·2 (1)	53·9	58·1 (2)	8·3
Punjab	18·0 (3)	23·3	50·4 (4)	12·8
Bengal	15·4 (5)	22·8	85·5 (5)	6·3
Madras	8·9 (6)	12·1	51·2 (6)	4·4
Bombay	12·4 (7)	14·4	81·4 (7)	16·3
Sind	6·0 (8)	7·2	82·1 (8)	17·8

(1) 22 markets, (2) 29 markets, (3) 6 markets, (4) Delhi, (5) Calcutta, (6) Madras, (7) Bombay, (8) Karachi.

* Report on the Marketing of Sugar published by Central Agricultural Marketing Department (Government of India), 1943, p. 130.

TABLE No. 35

Statement showing Sugar Production and Quotas allotted for the Civilian Consumption During 1945-46, by the Sugar Controller§

(PROVISIONAL)

S. No.	Areas	Production during 1945-46 (Tons)	Quota from local production (Tons)	Quota from U.P. & Bihar (Tons)	Total quota for civilian consumption for 45-46 (Tons)
1	2	3	4	5	6
1.	Assam	......	......	16,530	16,530
2.	Baluchistan	......	......	4,090	4,090
3.	Bengal & Bengal States ...	21,692	21,692	1,10,113	1,31,805
4.	Bombay & States	91,600	87,648	85,052	1,72,700
5.	Central India	16,217	16,217	5,973	22,190
6.	C. P. & States	......	......	32,800	32,800
7.	Delhi	......	......	15,230	15,230
8.	Hyderabad †	16,393	18,000	Nil	18,000
9.	Jammun & Kashmir	782	782	4,878	5,660
10.	Madras & States	68,351	68,351	29,739	98,090
11.	N. W. F. P.	3,038	3,038	12,622	15,660
12.	Orissa	2,146	2,146	5,254	7,400
13.	Punjab & States	15,949	15,949	1,22,381	1,38,330
14.	Rajputana	3,080	3,080	32,250	35,330
15.	Sind & States	......	......	36,020	26,020
16.	U. P. & States	5,31,245	1,12,180	......	1,12,180
17.	Bihar	1,76,726	49,000	......	49,000
	Total ...	9,47,219	3,98,083	5,02,932*	9,01,015*

* Includes 15,000 tons of Khandsari sugar allotted outside the U. P.

† Quota allotted was 18,000 tons on the basis of expected local production of 18,000 tons. The actual production is only 16,393 tons.

No sugar is, however, to be supplied from U. P. & Bihar.

§ This is provisional, and is adjusted from time to time.

Non-varying price for cane in U. P. and Bihar in 1944-45. Punjab and Bengal Fix Higher Prices

Early in November, 1943, the Government announced an increase in the minimum price of cane in U. P. and Bihar from As. 10 a maund which was the price in the 1942-43 season, to As. 12 a maund of cane. At the same time, the factories were directed not to pay the full price to the cane-grower all at once. One-sixth of the price, i.e. two annas a maund, was to be paid in Defence Savings Bonds or Certificates which were to be cashed one year after the war was over. The Government expected that on the basis of production of 9 lakhs tons of sugar in U. P. and Bihar, nearly Rs. 3 crores would thus be withheld from circulation and be of assistance in their anti-inflationary tendencies. The Punjab Government, finding that factories were unable to get cane at Rs. 0–12–0, fixed Rs. 0–14–6 per maund, and the Bengal Government fixed Re. 1 per maund.

Special Reduction in Cane Price towards the fag end of the Season, 1943-44

With effect from 15th May, 1944, the U. P. Government announced a reduction of Rs. 0–2–0 in the price of cane, i.e. to Rs. 0–10–0 per maund, in order to induce factories to continue crushing and produce maximum quantities of sugar. The full amount was to be paid straight to cane-growers.

Discontinuance of Additional Special Cess of Rs. 0-0-6 per maund of Cane in U. P. and Bihar in 1943-44

Additional Cess of 0–0–6 per maund of cane imposed in 1940-41 to repay the deferred excise duty, for which an amount of Rs. 1,50 crores was borrowed from the Government of India, with a view to enable the Governments of U. P. and Bihar to give a temporary rebate of one rupee per maund of the excise duty, was discontinued from 1943-44 season, as the amount was fully collected and as the sum, along with the interest, was repaid to Government of India.

Raising of Ordinary Cess on Cane from 0-0-3 to 0-1-0 per maund in U. P. and Bihar in 1943-44

The rate of ordinary Provincial cess on cane which was 0-0-3 per maund was, however, raised to 0-1-0 per maund with effect from 1943-44, in U. P. and Bihar, in spite of the protests of the industry. The proceeds of this cess will be credited to Provincial Revenues as usual. No portion of this cess is earmarked for any specific purposes. But in 1942-43, the U. P. Government spent a substantial amount from the General Revenues on (*i*) Cane Development Department, (*ii*) the staff for reservation and bonding of sugarcane, (*iii*) the seasonal staff maintained for the administration of the United Provinces Sugar Factories Control Act, 1938, and the rules made thereunder, (*iv*) the Sugar Commission, (*v*) the special staff maintained at the Imperial Institute of Sugar Technology in connection with the technical and statistical work entailed by the Sugar Factories Control Act and Rules, and (*vi*) the staff maintained in connection with the Sugar Control Scheme of the Government of India.

Cane Prices and Cane-cess During 1944-45, and 1945-46 Seasons in U. P. and Bihar.

In October, 1944, the Sugar Controller for India, after consulting his Advisory Committee, announced an increase of Rs. 1-7-0 in the Sugar price,

thereby fixing the price of sugar of the standard quality (D. 24) at Rs. 16-4-0 per maund. The Governments of U. P. and Bihar on the basis of this increase fixed a cane price of As. 14/-. Thus the minimum price of cane for the season 1944-45 was fixed at annas fourteen per maund of cane exclusive of cess to be paid by all factories.

In September, 1945, the Government of U. P. and Bihar announced the minimum prices for sugarcane in the ensuing season as follows :—

For U. P. Rs. 0-14-6 per maund for cane delivered at the factory gate, and
Rs. 0-14-0 per maund for cane purchased at outstations

For Bihar Rs. 0-15-0 per maund.

Cane Prices in the Punjab and Bengal (1945-46)

To enable factories in the Punjab and Bengal to get cane without any difficulty, the cane prices were fixed higher than in the U. P. and Bihar. The price fixed in the Punjab was Re. 1 per maund, while in Bengal it was as high as Re. 1–2–0 per maund.

Cane cess in Bihar & U. P. (1945-46)

A cess of Rs. 0-1-0 per maund was levied on all sugarcane utilised in factories in Bihar. The sugar factories at Maharajganj, Baksar and the Gangadeshi Sugar Factory were exempted from payment of this cess.

In U. P. also a cess at the rate of 0-1-0 per maund was continued as in the last year.

No compulsory deductions from cane prices for Defence Savings Certificates were made in the U. P. and Bihar during this season, the same having been abolished late in the last season i. e. in January 1945.

Cane Prices in Other areas in 1944-45 and 1945-46

Madras

In order to ensure adequate supplies of sugar cane to the sugar factories in the Province the Madras Government prohibited crushing of sugar cane for the manufacture of jaggery except under permits in most of the factory areas and directed the cane growers in specified villages in these areas to supply cane to the factories concerned. Basic minimum prices of sugar cane for delivery at the factory were fixed for all the factory areas in the Province taking into consideration the price of sugar, the percentage of recovery of sugar, the cost of cultivation and profits on alternative crops. The prices were fixed in such a way as to ensure that full benefit of the increase in sugar price since 1944 was passed on to the cane growers by way of enhanced prices for cane. The prices so fixed ranged from Rs. 20/8 to Rs. 24/- per ton in 1944-45 and from Rs. 21/- to Rs. 26/- per ton in 1945-46.*

Mysore

The price fixed for sugarcane to be purchased from the ryots was Rs. 21/- per ton in 1944-45 as against Rs. 18/- in 1943-44.

GANDHI & CO., (Publishers),
Jan Mansion,
Sir Pherozeshah Mehta Road,
Bombay, 31st August, 1946.

M. P. GANDHI,
Editor.

---

* *Vide* Govt. of Madras, Food Department., Letter No. 984-C/46 dated 11-4-46.

"THE SUGAR INDUSTRY AT A GLANCE" (1945-46)

SUGAR INDUSTRY (PROTECTION) ACT, 1939*
(Present Duties to continue till 31st March 1947)

ACT NO. XX of 1939

An Act to provide for the continuance for a further period of the protection conferred on the sugar industry in British India.

Whereas it is expedient to provide for the continuance for a further period of the protection conferred on the Sugar Industry in British India, and to extend the date before which the Central Government is required under Section 3 of the Sugar Industry (Protection) Act, 1932, to lay before the Indian Legislature the proposals referred to in the said Section;

XIII of 1932

It is hereby enacted as follows:-

Short Title

1. This Act may be called the Sugar Industry (Protection) Act, 1939.

Amendment of Sec. 3 of Act XIII of 1932 †

2. In Section 3 of the Sugar Industry (Protection) Act, 1932, for the figure "1939" the figure "1941" shall be substituted.

Amendment of First Schedule to Act XXXII of 1934 ‡

3. In Item No. 17 of the First Schedule to the Indian Tariff Act, 1934:—

*Received the assent of the Governor-General on March 31, 1941. For the Sugar Industry (Protection) Act, 1932, and the Sugar Industry (Temporary Extension) Act, 1938, *see* 1939 Sugar Industry Annual, pages 1 to 4.

† As amended, Section 3 of Act XIII, 1932, *viz.* the Sugar Industry (Protection) Act, 1932, will read as under :—

3. The Governor-General-in-Council shall cause to be made by such persons as he may appoint in this behalf, an inquiry to ascertain if the protection of the Sugar Industry during the period from the 31st day of March 1941 to the 31st day of March 1946, should be continued to the extent conferred by this Act, or to a greater or lesser extent, and shall, not later than 31st day of March 1941 lay his proposals in this behalf before the Indian Legislature.

‡ As amended, Item No. 17 of the First Schedule to the Indian Tariff Act, 1934, will read as follows :—

17. Sugar, excluding confectionery	Protective	The rate at which excise duty is for the time being leviable on sugar, other than *khandsari* or *palmyra* sugar, produced in British India plus Rs. 6-12-0 per cwt.	Upto 31st March 1946

(*a*) In the fourth column, for the words and figures "plus Rs. 7-4-0 per cwt." the words and figures "plus Rs. 6-12-0 per cwt." shall be substituted;

(*b*) In the last column, for the figures "1939" the figure "1944" shall be substituted.

By the Protective Duties Continuation Act 1944, the existing protective duties on sugar [as also wood pulp, paper, silk manufactures, gold and silver thread and wire] *were continued for a further period of two years, that is, upto 31st March, 1946.*

Under Act 7 of 1946, it was provided that the life of the Indian Tariff Act, 1934, (XXXII of 1934) be continued for a further period of one year upto the 31st day of March 1947. The relevant portion in connection with the same as embodied in the Finance Act, 1946, is given below :–

"The additional duties of customs on certain goods chargeable with the duty of customs under the first Schedule of the Indian Tariff Act, 1934 or under the same Schedule read with any notification of the Central Government for the time being in force, imposed upto 31st day of March 1943 by section 6 of the Indian Finance Act, 1942 and continued, subject to certain modifications, upto 31st day of March 1946, by section 4 of the Indian Finance Act, 1945, as amended by section 4 of this Act shall continue to be levied and collected as provided under the said section 6 upto the 31st day of March 1947".

Note :—The total import duty on sugar (including the equivalent excise duty of Rs. 3 per cwt. and the surcharge of 20 per cent imposed with effect from the 1st April 1942) amounts of Rs. 11-1-7 1/5 per cwt. with effect from 1st April 1944. It will be continued upto 31st March, 1947.

A Tariff Board enquiry was to be undertaken before March 1947 but, we believe it may be delayed, in which case we expect that protection will be continued till 31st March 1948, pending the recommendations of the Tariff Board after the institution of the enquiry.

SUGAR EXCISE DUTY ACT, 1934

(For Text of the Act, refer to earlier issues of the Annual.)

INTERNATIONAL SUGAR AGREEMENT.

India does not join after September 1942.

India was a party to the International Sugar Agreement which was concluded in 1937 with a view to establishing and maintaining an orderly relationship between supply and demand of sugar and to regulate the world prices of sugar. Under this agreement India undertook to prohibit exports of Indian sugar by sea elsewhere than to Burma.

India was released from this obligation not to export sugar by sea, with effect from 1st September 1942, the Government of India having decided not to join in the proposed extension of the International Sugar Agreement.

India is now free to export sugar by sea (1946).

U. P. AND BIHAR GOVERNMENTS' ACTS

U. P. & BIHAR SUGAR CONTROL BOARD (1946-47)

The following persons have been nominated as Members of the reconstituted Sugar Control Board of U. P. and Bihar, by notification dated 19th July 1946 for a period of 1 year from 1st July, 1946:—

Dr. K. N. Katju, Minister for Industries, U. P.; Dr. Syed Mahmud, Minister for Industries, Govt. of Bihar; Mr. D. R. Narang, Basti Sugar Mills, Ltd.; Mr. C. O'Malley, Begg, Sutherland & Co., Ltd., Cawnpore; Mr. R. L. Nopany, 178, Harrison Road, Calcutta; Mr. Guru Sharan Lall, Gaya Sugar Mills Ltd., Guraru (Bihar); Mr. N. A. Shervani, Neoli Sugar Factory; Mr. Lala Har Sahai Gupta, Shanker Agricultural Farm, Bilari; Mr. N. R. Kitwai, Secretary: Co-operative Development Union Ltd.; Mr. Altaf Husain, Gorakhpur; Mr. Chowdhuri Kalika-prasad Roy, Bihar; Mr. Dipnarayan Singh, Bihar; Mr. Satyapal Varma, Cawnpore; Secretary to the Government of Bihar, and U. P., Department of Development and Agriculture.

U. P. AND BIHAR SUGAR COMMISSION

In August 1940, the U. P. and Bihar Governments set up a joint "Sugar Commission, which would be the final authority, subject to Government control, on all matters connected with the production and sale of sugar, as well as other matters regarding cane prices, etc." It may be observed that since the institution of Central Control over the industry, the Sugar Controller for India exercises some of the powers relating to sale, cane price fixation, etc. in the interests of an all-India policy and to that extent directs the Sugar Commission and its Chairman in the discharge of their duties.

The Chairman of the Commission is Mr. B. B. Singh, I.C.S., who succeeded Mr. Malcolm in 1946. The Cane Commissioners of U. P. and Bihar are *ex-officio* members of the Commission. They are also *ex-officio* members of the Board of Directors of the Indian Sugar Syndicate Ltd. The office of the Sugar Commission is located at Cawnpore.

The Chairman of the Commission also acts as Provincial Sugar Controller for U. P.

U. P. AND BIHAR SUGAR FACTORIES CONTROL ACT

(Life Extended till 30th June, 1950)

During 1942 the Bihar and U. P. Governments proposed an amendment to the Control Acts with a view to maintain the continuity of work and to continue the operation of the Acts till the end of the crushing season 1946-47. During 1946, the life of these Acts was extended till June, 1950.

In November 1944, the United Provinces Government made certain amendments to the U. P. Sugar Factories Control Rules, 1938. Under the new amendment a Technical Committee consisting of six members have been set up to plan and organise and direct the technical problems concerning the sugar industry in U. P. The Director of Imperial Institute of Sugar Technology and the Cane Commissioner of U. P. have been appointed as *ex-officio* members of the Committee and the remaining four have been nominated by the Government after consulting the Indian Sugar Syndicate Ltd.

The functions of the Technical Committee shall be to advise the Provincial Government with regard to (*a*) the establishment of new sugar factories in the Province or additions or alterations in the existing plants of the sugar mills (*b*) and to advise on any other technical and incidental matters connected with the sugar mills referred to it from time to time by the Sugar Commissioner or the Provincial Government. The office of the Technical Committee is to be located at Cawnpore.

GOVERNMENT OF INDIA: DEPARTMENT OF FOOD SUGAR & SUGAR PRODUCTS CONTROL ORDER, 1946.

(As amended upto 18th February 1946.)

No. 1–SC (1)/46:—In exercise of the powers conferred by sub-rule (2) of rule 81 of the Defence of India Rules and in supersession of the Sugar and Sugar Products Control Order, 1943, published with the notification of the Government of India in the Department of Food No. 1–SC(1)/43, dated the 1st July 1943, the Central Government is pleased to make the following Order and to direct with reference to sub-rule (1) of rule 119 of the said Rules that notice of the Order shall be given by publication of the same in the Official Gazette and by the issue of a Press Note summarising and explaining its provisions :–

1. (1) This Order may be called the Sugar and Sugar Products Control Order, 1946.

(2) It extends to the whole of British India.

(3) It shall come into force at once.

2. In this Order unless, there is anything repugnant in the subject or context,

(a) "Controller" means the person appointed as the Sugar Controller for India by the Central Government, and includes any person authorised by the Controller to exercise all or any of the powers of the Controller under this Order ;

(b) "Dealers" means a person carrying on business in the purchase, sale or distribution of sugar or sugar products;

(c) "Ex-factory price" means the price of sugar inclusive of excise duty, packed in accordance with the usual market practice, and loaded at the buyer's option, on buyer's carts, lorries or other means of transport, or into railway wagons at the railway station or siding generally used by the producer, and all incidental charges including those for loading and forwarding, being on account of the ex-factory seller ;

(d) "Producer" means a person carrying on the business of manufacturing sugar or sugar products or both with the aid of electrical energy or any other form of energy which is mechanically transmitted, and is not generated by human or animal agency ;

(e) "Recognised Dealer" means a dealer who has been recognised as such by the Controller for the purposes of this Order ;

(f) "Sugar" means (i) any form of sugar containing more than 90 per cent of sucrose ; (ii) any sugar of crystaline structure ;

(g) "Sugar Product" means any article manufactured from, and containing sugar not less than 25 per cent of its weight.

3. No producer shall dispose of, or agree to dispose of, or make delivery of, any sugar, except ;—

(i) to or through a recognised dealer, or

(ii) to a person specially authorised in this behalf by the Controller to acquire sugar on behalf of the Central Government or of a Provincial Government or of an Indian State.

4. (1) If the Controller has reason to believe that the production of special types of sugar or sugar products is likely to affect adversely in the production of adequate quantities of ordinary sugar, he may, by general or special order, prohibit, or limit to such quantities as may be specified in the order, the manufacture by any producer or by producers generally of such types or grades of sugar or sugar products as the order may specify, and no producer to whom such order applies shall manufacture any sugar or sugar products in contravention thereof.

(2) For the purposes of sub-clause (1) "producer" includes a person carrying on the business of manufacturing any form of sugar containing more than 90 per cent sucrose including Khandsari Sugar, Desi Sugar and Bura.

5. Every producer and dealer shall comply with such directions regarding the production, sales, stocks or distribution of sugar or sugar products as may from time to time be given to him by the Controller.

6. (1) The Controller may, from time to time, fix by notification in the Official Gazette the price or maximum price at which any sugar or sugar product may be sold or delivered, and different prices may be so fixed by him for different areas or different types or grades of sugar or sugar products.

(2) Where the price or the maximum price has been so fixed :—

(a) the price at which such sugar or sugar product may be sold for delivery otherwise than ex-factory shall not exceed the price or the maximum price as the case may be fixed under sub-clause (1) for sale ex-factory plus such charges in respect of transport to or in specified areas and other incidental charges as are approved by the Controller;

(b) no person shall sell or purchase or agree to sell or purchase such sugar or sugar product at a price higher than that fixed under the provisions of sub-clause (1).

7. (1) The Controller may, from time to time—

(i) allot quotas of sugar or sugar products or of both for the requirements of any specified province, or area or market,

(ii) issue directions to any producer or dealer to supply sugar or sugar products to such provinces, areas or markets or such persons or organisations, in such quantities, of such types or grades, at such times, at such prices and in such manner as may be specified by the Controller, and

(iii) require any producer or dealer to keep in reserve stocks of sugar or sugar products in such quantities and of such types and grades as he may direct from time to time.

Provided that where the price or maximum price of any sugar or sugar product has been fixed in accordance with sub-clause (1) of clause 6 the Controller shall in respect of such sugar or sugar product specify the price or maximum price under para (ii) of this sub-clause accordingly.

(2) Every producer, shall, notwithstanding any existing agreement with any other person, give priority to, and comply with, any directions issued to him under sub-clause (1).

8. (1) No sugar shall be transported, or offered or accepted for transport, whether by rail, road or water, and whether by a railway servant, common carrier or other person except under and in accordance with the terms of :—

(a) general or special permit issued by the Controller in this behalf ; or

(b) a Military Credit Note.

Provided that nothing in this sub-clause shall apply to the transport of sugar not exceeding 20 seers as part of the personal luggage of a *bona fide* traveller.

(2) A permit issued in pursuance of sub-clause (1) shall be returned by the consignor to the Controller on completion of despatch, or on expiry of the period of its validity, whichever is earlier, with the particulars of actual despatches in the prescribed form.

(3) For the purposes of this clause "sugar" means sugar manufactured by any process, including sugar made in vacuum pan factories from cane or gur or palmyra jaggery, as well as Khandsari Sugar, Sugar Candy (Misri) and Bura.

9. The controller may, by notification in the Official Gazette, make rules for carrying into effect the purposes and objects of this order.

10. Notwithstanding the supersession of the Sugar and Sugar Products Control Order, 1943, all notifications, rules, orders, authorisations, quotas, requirements and directions issued or deemed to have been made thereunder shall, so far as they are not inconsistent with this Order, be deemed to have been made hereunder, and they shall continue in force until rescinded or modified hereunder.

11. If any person contravenes the provisions of this Order, then without prejudice to any other punishment to which he may be liable, any court trying the offence may order that any stocks of sugar or sugar products, together with the packages and coverings thereof, in respect of which the court is satisfied that the offence has been committed, shall be forfeited to His Majesty.

GOVERNMENT OF INDIA: DEPARTMENT OF FOOD GUR CONTROL ORDER, 1946

(With amendments up to 18th February 1946)

1. (1) This Order may be called the Gur Control Order, 1946.

(2) It extends to the whole of British India.

(3) It shall come into force at once.

2. In this order, unless there is anything repugnant in the subject or context,

(a) "Controller" means the person appointed as Gur Controller for India by the Central Government, and includes any person authorised by the said Controller to exercise all or any of the powers of the Controller under this Order;

(b) "dealer" means a person carrying on business in the purchase, sale, or distribution of Gur;

(c) "producer" means a person carrying on the business of producing Gur;

(d) "Gur" means articles commonly known as Gur, Gul, jaggery, palmyra jaggery, shakkar and rab, and includes raw sugar as also uncrystallised sugar in any other form comprising of original and convertible molasses and other impurities, inherent or foreign prepared by boiling cane or palmyra juice;

(e) "Sugar" means any form of sugar containing more than 90 per cent of Sucrose.

3. The Controller may, from time to time, fix by notification in the official Gazette for any specified area the maximum prices at which Gur may be sold or

delivered, and different rates of prices may be so fixed by him for different areas or different types or grades of Gur.

4. Every producer and dealer shall comply with such directions regarding the production, sales, delivery, stocks, distribution or prices of Gur as may from time to time be given by the Controller.

5. If in the opinion of the Controller the unregulated production of Gur in any area is likely to affect adversely the production of sugar in quantity which in his opinion is required for the needs of the community, he may, by order published in the official Gazette, provide for all or any of the following matters :—

(a) prohibit or restrict the export of sugar-cane to any place outside that area;

(b) direct that cane growers in that area shall deliver sugarcane to a specified sugar factory or factories in accordance with such conditions in regard to quantity, price, and time of delivery as may be specified by the Controller;

(c) prohibit, or restrict to such quantities or qualities or both as may be specified by the Order, the manufacture of Gur by all or any class of producers in the said area.

6. (1) The Controller may, from time to time—

(i) allot quotas of Gur for the requirements of any specified province or area, or of any specified market, and

(ii) issue directions to any producer or dealer to supply Gur to such areas or markets or such persons or organisations, in such quantities, of such types, or grades, at such times, at such prices and in such manner as may be specified by the Controller.

(2) Every producer or dealer shall, notwithstanding any existing agreement with any other person, give priority to, and comply with, any directions issued to him under sub-clause (1).

7. No gur shall be transported or offered or accepted for transport whether by rail, road or water and whether by a railway servant, common carrier or other person except under a permit issued by the Controller in such form and subject to such conditions and in respect of such areas as he may from time to time prescribe.

Provided that this clause shall not apply to the transport by railway or in any manner whatsoever by land or water of Gur (a) by a *bona-fide* traveller as part of his personal luggage or (b) under and in accordance with Military Credit Notes.

Explanation.—For the purposes of this clause Gur not intended for the personal use of the traveller and members of his family shall not be deemed to be his personal luggage.

8. The Controller may, by notification in the Official Gazette, make regulations for carrying into effect the purposes of this Order.

9. If any person contravenes the provisions of this Order, then without prejudice to any punishment to which he may be liable, any court trying the offence may order that any stocks of gur, together with the packages and coverings thereof, in respect of which the court is satisfied that the offence has been committed shall be forfeited to His Majesty.

10. Notwithstanding the supersession of the Gur Control Order, 1943, all notifications, rules, orders, authorisations, quotas, requirements and directions issued thereunder shall, so far as they are not inconsistent with this Order, be deemed to have been made hereunder, and they shall continue in force until rescinded or modified hereunder.

Gazette of India 1-G(1)/46, 18th February 1946.

INDIAN CENTRAL SUGAR-CANE COMMITTEE FORMED IN 1944

The Government of India announced their decision to set up a Central Sugar-cane Committee by a resolution No. F 41-24/43A dated 6th June 1944, of the Education, Health and Lands Department.

The following is the text of the Government resolution, dated 6th June 1944, published in the *Gazette of India*.

Taking into account the expansion of sugar-cane research work and envisaging considerable further developments in the near future and the need for post-war re-adjustments, the Sugar Committee of the Imperial Council of Agricultural Research in October 1941, recommended that a Central Sugar Committee should be constituted on the lines of the Indian Central Cotton Committee and with somewhat similar powers and functions. This resolution was endorsed by the Governing Body of the Imperial Council of Agricultural Research in July, 1942. The Government of India agreeing with the Sugar Committee and the Imperial Council of Agricultural Research, have accepted this recommendation in principle and decided to set up a Central Sugar-cane Committee, which will be a body corporate registered as a society under the Registration of Societies Act (XXI of 1860) with Head Quarters at Delhi or such other place as the Committee may decide.

Functions:—The functions of the Indian Central Sugar-cane Committee will be to undertake the improvement and development of the growing, marketing and manufacture of sugar-cane and its products in India aud of all matters incidental thereto. This includes items such as agricultural, technological and economic research on sugar-cane, gur, sugar and their by-products, the improvement of crop forecasting and statistics, the production, distribution and testing of improved varieties, the adoption of improved cultural practices, enquiries and recommendations relating to banking and transport facilities and transport routes, the maintenance of an Institute of Sugar Technology and other similar matters. The control over the Institute of Sugar Technology will vest in the Committee along the lines indicated later. The Committee will also advise the Central and Provincial Governments concerned on any points which may be referred to it by them, provided the subject matter of the reference falls within the prescribed functions of the Committee.

Constitution:—It is desirable that the growers, the manufacturers and the traders should be fairly represented on the Committee. Subject to a reserve power of nomination by the Governor-General-in-Council so as to permit of appointments to the Committee to meet requirements that may vary from time to time, the Committee will be constituted as follows:—

(1) The Vice-Chairman, Imperial Council of Agricultural Research, who shall be *ex-officio* President of the Committee.

(2) The Agricultural Commissioner with the Government of India.

(3) The Director, Imperial Agricultural Research Institute.

(4) The Director, Imperial Institute of Sugar Technology.

(5) The Agricultural Marketing Adviser to the Government of India.

(6) The Imperial Sugar-cane Expert.

(7)-(14) The Directors of Agriculture, Madras, Bombay, Bengal, United Provinces, Punjab, Bihar, Mysore and Hyderabad or their nominees.

(15)-(16) The Cane Commissioners, United Provinces and Bihar.

(17)-(25) Nine representatives nominated by the Indian Sugar Mills Association, of whom at least two shall be representatives of the Indian Sugar Producers' Association, one representative of the Deccan Sugar Factories Association, one of the Indian Southern Provinces Sugar Marketing Board and one of the Bengal Sugar Mills Association.

(26) One representative of Sugar Factory Owners nominated by the Governor-General-in-Council.

(27)-(30) Four representatives of the Gur and Khandsari Industry nominated by the Governor-General-in-Council.

(31)-(38) Eight non-officials representing agricultural interests, one nominated by the Government of Madras, one by the Government of Bengal, two by the Government of United Provinces, one by the Government of Punjab, one by the Government of Bihar and two by the Governor-General-in-Council to represent other areas.

(39)-(41) Three representatives of Sugar Trade—one nominated by the Bombay Sugar Merchants' Association, one by the Cawnpore Sugar Merchants' Association and one by the Indian Sugar Syndicate.

(42)-(44) Three representatives nominated by the Governor-General-in-Council to represent the consumers.

(45) One representative of Sugar Technologists nominated by the Governor-General-in-Council.

The tenure of the appointment of the members of the Committee other than those who are appointed by reason of the office or appointment they hold, will be three years with effect from the 1st April of the year in which they are appointed or such lesser period as may be specified in the notification.

The Secretary of the Committee, who will not be a member of it, will be appointed by the Governor-General-in-Council, but he will be paid from the funds of the Committee. The Director of the Institute of Sugar Technology will continue to be a servant of the Government of India. His salary and allowances will also be paid from the funds of the Committee, but the Government of India have agreed to meet his leave and pension contribution. The Committee will continue to employ at the Institute of Sugar Technology from its own funds such staff as has been lent to the Institute by the Government of the United Provinces on the same basis on which they are at present employed by the Government of India, as also such other staff as are at present on contract till such time as contracts expire.

The Committee will continue to maintain the Imperial Institute of Sugar Technology both as a teaching and as a research institution and will be responsible for the maintenance of sugar standards. Returns under the Sugar Production Rules, the maintenance of sugar trade information services and any special work that may be required by the Central or by any Provincial Government will be directly under the control of the Director of Institute of Sugar Technology.

Funds of the Committee:—The Government of India will finance the Committee by placing at its disposal the entire proceeds of the Sugar Excise Fund; the amount so credited shall continue to be one anna per cwt. of white sugar produced in British India out of the excise duty levied on it. The question of increasing this amount will be considered after the war. If the amount placed in the Fund in any year falls short of the needs of the Committee, the Government of India will automatically grant a loan free of interest to cover the deficit and enable the Committee to incur expenditure upto a limit of Rs. 11.75 lakhs in the

year subject to the condition that the first charge on any surplus occurring thereafter will be the repayment of this loan. The Committee will meet all the present liabilities of the Fund and take over all its assets.

COMPOSITION OF THE INDIAN CENTRAL SUGARCANE COMMITTEE (1946)

List of the Members of the Indian Central Sugar-cane Committee

Vice-Chairman, Imperial Council of Agricultural Research, Agricultural Commissioner with the Government of India, Director, Imperial Agricultural Research Institute, Director, Imperial Institute of Sugar Technology, Agricultural Marketing Adviser to the Government of India, Imperial Sugarcane Expert, Coimbatore, Director of Agriculture, Madras, Director of Agriculture, Bombay, Poona, Director of Agriculture, Bengal, Calcutta, Director, Central Sugarcane Research Station, Shahjahanpur, Director of Agriculture, Punjab, Lahore, Director of Agriculture, Bihar, Patna, Director of Agriculture, Mysore, Bangalore, Director of Agriculture, Hyderabad, Cane Commissioner, United Provinces, Lucknow, Cane Commissioner, Bihar, Patna, Lala Gurusharan Lall, R. L. Nopani, K. K. Birla, Sir Shankar Lal, D. R. Narang, C. W. Tosh, Lalchand Hirachand, A. A. Khan, B. P. Dalmia, Dr. Chr. H. Nielson, Nasirul Rahman Kidwai, Banchhanidhi Kar, Sardar Iqbal Singh, Mr. Jagdish Saran Agarwal, V. T. Ramaswami Iyer, Hamidul Huq, Chowdhury, Raja Reghavendra Pratap Singh, M.L.A. Lala Har Sahai Gupta, Sardar Santokh Singh of Shankot, S. Basu, Rao Bahadur Shembhedkar, Mian Abidul Haq, Seth Maneklal Ujamshi, Lala Daya Ram, Karamchand Thapar, G. V. Deshmukh, Sir Muhammad Yamin Khan, The Hon'ble Mr. Hossain Imam, Sir T. S. Venkat Raman, The Sugar Controller for India, A. A. Said, Dr. Naganna Goud.

RESOLUTIONS OF INDIAN SUGAR MILLS ASSOCIATION, 1945-46

Some Important Resolutions passed at the 13th Annual General Meeting of the Indian Sugar Mills Association held on 10th November 1945

1. Centralisation of the Industry.

This Association notes with satisfaction from the Statement of the Government of India on their future industrial policy that the sugar industry would be centralised and urges upon the Government to implement the same at an early date. This Association, in this connection, further urges the Government for the establishment of an all-India Sugar Board consisting of representatives of the manufacturers, the cane growers and the Governments of the various sugar-producing provinces and the Indian States, to advise the Government on all matters connected with the industry.

2. Extension of Protection.

This Association urges on the Government of India that as soon as normal conditions are restored, it should set up a Tariff Board to enquire into the extent of protection necessary for the sugar industry, and pending the report of such a Tariff Board, recommends that the present protection be extended for a further period of three years in the first instance.

3. Controlled Rates for next Season, 1945-46.

This Association feels that the present method of calculating the price of sugar leaves very little margin of profit to the factories after paying taxes on the current rates to build up sufficient reserve to effect necessary replacements at present high cost of machinery and strongly urges its revision at an early date.

4. Government's Contribution to Indian Central Sugarcane Committee.

This Association notes with satisfaction the action taken by the Government of India in placing a sum of Rs. 125 lakhs out of the collections from the Temporary Additional Excise Duty levied on sugar owing to the increase in its price during the seasons 1943-44 and 1944-45 at the disposal of the Indian Central Sugarcane Committee, to be utilised on a five year plan for the development of the Sugarcane Industry.

This Association has felt the lack of adequate research facilities on the problems of Indian Sugar Industry, which has constituted a serious obstacle in its further development and in reducing the cost of production of sugar. The Association urges that the Indian Central Sugarcane Committee will take adequate steps for achieving the above objects at an early date.

This Association further invites attention to the assurance given by the Government of India at the time of constituting the Indian Central Sugarcane Committee that they would reconsider the question of increasing their contribution after the termination of hostilities and strongly urges upon the Government to contribute larger sums from sugar Excise Receipts to the Committee by increasing the rate of allotment from one anna to three annas per cwt. of sugar assessed to duty, as was recommended by the Tariff Board in 1938.

5. Shrinkage in Production in the Bombay Presidency.

This Association notes with concern the policy being followed by the Bombay Government towards the Sugar Industry, particularly in the manner of supplying water for cane irrigation, manure, agricultural implements etc., and the inclusion of cane growers and companies owning cane farms under the Bombay Growth of Food Crops Act, 1944, which has curtailed their output at a time when the country was facing acute shortage of sugar and when all the other Provincial and Central Governments were rendering all the necessary assistance for maximising the production of sugar in the country. The Association disapproves the above policy of the Bombay Government and strongly urges upon them to render adequate assistance to the sugar factories to enable them to maximise their production.

A WORLD SUGAR PICTURE AND INDIA'S POSITION THEREIN

DO YOU KNOW (It would be interesting to know) that:

◈ Sugar is one of the cheapest, most universally used and palatable sweetening agent of proved high calorific value, unique for quick conversion into energy, contains 100 per cent carbohydrate and its value as a prime and vital food is enhanced due to the shortage of carbohydrates in general all over the world.

◈ The world production of sugar 1944–45 was only of the order of 19 million tons as compared with 30 million tons in the per-war year.

◈ It is essential for India to produce larger quantities of sugar both for meeting the increased internal requirements and also for exporting to neighbouring countries which are starved of sugar.

◈ The drive for an all-out production of sugar can easily result in production of about 15 lacs tons of sugar with the existing capacity of factories in India. When need for further increase in capacity is felt, it would be desirable to locate further factories outside U. P. and Bihar in order to arrange for a proper dispersal of the industry all over the country.

◈ If the industry continues to be encouraged, India may eventually become a world sugar market, being one of the greatest sugarcane producers.

◈ Approximately two-thirds of the sugar produced in the world is from sugarcane and balance from beet. (90 per cent of the beet sugar comes from the European countries.)

◈ Production of sugar (including Gur) in India approximates to 26 per cent of the total cane sugar production of the world and to 16 per cent of the total sugar production in the world, both from cane and beet. (This refers to pre-war period.)

◈ The area under cane in India, i.e. 4 million acres, which is *only* 2 *per cent* of the cultivated area in India, is approximately 35 per cent of the world's sugar cane area.

◈ Taking gur and sugar together, India is the *largest* single sugar-producing country of the world.

◈ The total quantity of sugar transported by railways in India per year comes to about one-thousandth of the total quantity transported by railways, viz. 90 crores tons.

◈ A Sugar Research Foundation has been established in New York in 1943, comprising growers and processors of cane and beet sugar for research work in increasing the consumption of sugar through the development of new industrial uses, and establishment of a proper place of sugar in the diet.*

---

* Vide "Problems of Sugar Industry in India—Scope and Prospects of Re-organisation", by Mr. M. P. Gandhi, with a foreword by Sir Purshotamdas Thakurdas, K.B.E., C.I.E. 375 Pages. Rs. 12. Published in December 1945.

◆ It will take at least a few years before Java is able to produce the quantity of sugar it did in the pre-war period.

◆ The Government of India have issued licences (in 1945) for import of six more sugar plants valued at Rs. 1,57 lakhs (all from the U.K.).

◆ The present shortage of sugar in the world is likely to continue for 3—4 years yet.

◆ The percentage of the area under improved varieties to the total acreage under Sugarcane in India in 1942–43 was 80.

◆ The U.P. and Bihar Sugar Factories Control Act has been extended up to the 30th June, 1950, and it provides for the banning of unsuitable varieties of cane and for checking sales of cane in the reserved area of a factory to persons other than the occupiers of the factory.

◆ There has been a progressive increase in the minimum price of cane in India during the last 3 years and as a consequence, the price of sugar has been increasing, although the margin of profit allowed to the industry has not been allowed to increase.

◆ The period of protection to the industry has been extended till the 31st March, 1947.

◆ The production of sugar in 1946–47 is expected to be larger than the previous season, if the price of gur is fixed at a fairly high level, if an uninterrupted supply of cane and materials like sulphur, coal, lime, etc., to the industry is maintained throughout the season and if the Khandsari Sugar is controlled in the U.P.

◆ The rationing of sugar, it seems, will continue at least till the production reaches the level of about 14 lacs tons.

◆ It is worthwhile to explore the possibilities of production of sugar and gur through palm-trees in India.†

◆ The number of factories, working by the sulphitation process, in India is 144 as compared with 17 working by the carbonatation process which latter can produce superior quality of sugar at a slightly higher cost.

◆ The Indian Sugar Industry—the second largest national industry of the country—represents investment of capital to the extent of about Rs. 33 crores.

◆ The total annual value of sugar and gur produced is about Rs. 200 crores (1946).

◆ The industry gives employment to 3,000 graduates, 1,00,000 skilled and unskilled workers, and interests not less than 20 million cultivators, and helps to retain in the country a sum of Rs. 16 crores which was being sent abroad.

M. P. GANDHI.

31–8–1946.

---

† Vide Appendix III of the volume, referred to in the footnote of the previous page.

TABLE No. 29-A (Supersedes Table 29)

REVISED PRICES OF SUGAR

(From 23rd October, 1946)

1. For the sugar produced by all Vacuum-pan sugar factories in British India other than those situated in the provinces of the Punjab and the N.-W.F. Province* from 23rd October, 1946† :—

(*a*) Price per maund of crystal sugar for sale ex-factory according to the grade :—

—	21	22	23	24	25	26	27	28	29
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
AA ...	...	...	21 4 6	21 6 0	21 8 0	21 9 6	21 11 6	21 13 0	21 15 0
A ...	20 14 6	21 2 6	21 2 6	21 4 0	21 6 0	21 7 6	21 9 6	21 11 0	21 13 0
B ...	20 12 0	20 14 0	21 0 0	21 1 6	21 3 6	21 5 0	21 7 0	21 8 6	21 10 6
C ...	20 10 0	20 12 0	20 14 0	20 15 6	21 1 6	21 3 0	21 5 0	21 6 6	21 8 6
D ...	20 8 6	20 10 6	20 12 6	20 14 0	20 15 6	21 1 6	21 3 6	21 5 0	21 7 0
E ...	20 7 0	20 9 0	20 11 0	20 12 6	20 14 6	21 0 0	21 2 0	21 3 6	21 5 6
F ...	20 6 0	20 8 0	20 10 0	20 11 6	20 13 6	20 15 0	21 1 0	21 2 6	21 4 6
G ...	20 5 0	20 7 0	20 9 0	20 10 6	20 12 6	20 14 0	21 0 0	21 1 6	21 3 6

(*b*) Price per maund of crushed sugar for sale ex-factory according to the grade :—

Grade	Price per maund.
	Rs. a. p.
13	21 3 0
12	21 0 0
11	20 14 0

(*c*) Price per maund of refined sugar for sale ex-factory according to the grade :—

Grain Size	27	28	29
	Rs. a. p.	Rs. a. p.	Rs. a. p.
AA	22 5 0	22 7 0	22 9 0
A	22 3 0	22 5 0	22 7 0
B	22 1 0	22 3 0	22 5 0
C	21 15 0	22 1 0	22 3 0
D	21 13 0	21 15 0	22 1 0
E	21 12 0	21 14 0	22 0 0
F	21 11 0	21 13 0	21 15 0
G	21 10 0	21 12 0	21 14 0

* The prices for sugar produced by sugar factories in the Punjab and N.-W.F. Province have been fixed at Rs. 3-2-0 per maund higher than the above prices. Thus D24, in the Punjab and N.-W.F. Province has been fixed at Rs. 24-0-0 as against Rs. 20-14-0 elsewhere in India.

This supersedes Table No. 29, which has become obsolete.

† Government of India, Food Department, Notification No. 20-SC(32)/46, Dated New Delhi, 23rd October, 1946.

U. P. AND BIHAR SUGAR CONTROL BOARD, 1946-48 REVISED PERSONNEL FOR 1946-48*

The following persons have been nominated as Members of the reconstituted Sugar Control Board of U.P. and Bihar, by notification dated 19th July 1946, for *a period of 2 years* from 1st July 1946 :—

The Hon'ble Minister-in-charge of Development, Bihar Government, The Hon'ble Minister-in-charge of Development, U.P. Government, Mr. Jamuna Prasad Singh, M.L.A., Khan Bahadur Saghirul Haque, Mr. D. R. Narang, Mr. C. O'Malley, Mr. K. K. Birla, Mr. R. L. Nopany, Mr. N. A. Shervani, Mr. Lala Hari Sahai Gupta, M.L.C., Mr. Phool Singh, M.L.A., Mr. Shibban Lal Saksena, M.L.A., Mr. Satyapal Varma, The Secretary to the Government of Bihar, Development & Employment Department, The Secretary to the Government of U.P., Agricultural Department.

SUGAR (TEMPORARY EXCISE DUTY) ORDINANCE, 1946†

The Government of India increased the price of sugar as stated in the previous page by Rs. 4-4-0 per maund with effect from 23rd October 1946. With effect from the same date they imposed a temporary excise duty of Rs. 4-4-0 per maund on all stocks of sugar held by the factories, wholesalers, etc. The Ordinance (XXV of 1946) imposing a temporary excise duty on all sugar produced in any factory in British India before the commencement of this Ordinance and owned or possessed at the commencement of this Ordinance by the owner of a factory or by a wholesale dealer, at the rate of Rs. 4-4-0 per standard maund, was issued on the 23rd October 1946 and published in the *Gazette*.

IMPORT OF SUGAR MACHINERY IN INDIA IN 1940-41 AND 1941-42‡

The value of sugar machinery imported in British India during 1940-41 was Rs. 40,87,000 and in 1941-42 Rs. 20,41,000. (These figures should be added to table No. 26 on page xii of the "Sugar Industry at a Glance").

---

* This supersedes the list of members given on page xxii in "The Sugar Industry at a Glance".

† The excise duty on sugar produced *after* 23rd October 1946, remains the same, viz. Rs. 3-0-0 per cwt., or Rs. 2-3-3 per maund.

‡ *Vide* Supplement to the Indian Trade Journal of 28th February 1946.

THE INDIAN SUGAR INDUSTRY—
(1945-46 ANNUAL)

EDITOR: M. P. GANDHI.

(A Review of the Sugar Industry in India during the 1944–45, *and* 1945–46 *Seasons, and comments on the* 1946–47 *Season.)*

Introductory.

During the last few years, the review contained the survey of the particular year under review. We had, for example, discussed in the preceding Annuals the position of the industry as it existed in the year for which information was available and at the same time made a forecast and discussed the likely trends for the industry for the year to come. We found that that method was suitable particularly because in each of the years for which a review was undertaken, a large number of problems cropped up which had no logical sequence for a year other than the one under review. Every year there were new problems which the industry had to face and, therefore, we followed the practice of discussing the history of the particular year under review. Now that the war has ended and the industry is likely to switch over its position from war time conditions to peace time conditions, we have preferred to take a panoramic view of the industry both in India and the world during the war, and while doing so, desire to study the international trends in the sugar world, which, from our study we have found, are not remarkably dissimilar in their essentials.

Discussing, therefore, the position of the Sugar Industry during the years of the war, it might be said that during the six years of war both in India and elsewhere in the world the industry was subjected to extreme vicissitudes. Production of sugar from cane was in some cases either substantially curtailed or it suffered from lack of facilities which it had been deprived of due to conditions created by the war. If in certain countries production was less because of irrigation and manure facilities, in others, the low level of production was due to transport difficulties either by rail or by sea or to labour shortage, and in still others it was the case of invasion, e.g., Java and the Phillipines, where on account of the Japanese invasion the industry met with a severe disruption. On the whole, it can be stated fairly that no sugar producing area could enjoy the pre-war facilities or conditions, and as a result we found a considerable fall in the world production of sugar. In India, conditions were slightly different as it was not a war-theatre, and the production was not much affected.

World's Sugar Production since 1939

The table given below will substantiate the observations made above:

Year	*World production of sugar in tons*	*Indian production of sugar in tons*
1938–39 (pre-war season)	26,685,000	765,000
1939–40	30,446,000	1,398,000
1940–41	29,897,000	1,268,000
1941–42	19,225,000	941,900
1942–43	17,828,000	1,294,700
1943–44	19,460,000	1,304,000
1944–45	19,143,000	1,039,000
1945–46	17,667,000	1,016,000

It will be seen from the above table that the trend in production of sugar closely follows that of world production. The year 1939–40 forms the peak year of production in both the cases. After recording a slight reduction in 1940–41, the sugar production in the world as also in India shows a big drop in 1941–42. For a year or two the position, however, recorded a change in the situation. World production of sugar declined during the next two years, without however a *pari passu* reduction in the case of India, which was not a theatre of war. The last two years, however, show the same tendency for a general fall in production both for the world and for India. On the whole, it may generally be stated without any fear of contradiction that during the war years the trend of production of sugar in India followed that of the world.

Increase in Sugar production in India necessary

We shall not go into the details of the causes of the phenomena that we have recorded above. In many cases, the reasons for a fall in production were more or less similar. The fall in production had naturally a corresponding effect on the quantity consumed. Rationing of sugar had to be resorted to in almost all countries of the world. That there is a case in India for increasing the production of sugar needs no emphasis at our hands. In a recent statement, (1946) Mr. Vishnu Sahay, Sugar Controller for the Government of India, observed that "on the assumption that India's population remained stationary since 1941 and that a sugar ration of 24 lbs. per head per annum in towns with a population of 5,000 and over and 6 lbs. per head in rural areas, there would be a consumption of 15 lakhs tons of sugar in India." There is, therefore, a clear case for an increased output of sugar taking into account the population figures for 1941. For the year 1946 and after when the population has increased, there is still greater force in the contention we have been making that India's target of sugar production per year must be at least 15 lakhs of tons on a minimum estimate for the next few years. With the increase in the standard of living and the urbanization of population, the need would be decidedly in favour of more and more production of sugar.

With these preliminary remarks, we will now proceed to discuss the position of the sugar industry during the years 1944-45, and 1945-46.

Survey of the general Conditions in 1944-45

In our introductory remarks last year, we had made very exhilarating observations on the condition of the sugar industry in 1943-44. We regret we cannot say the same thing for the year 1944-45. As noticed above, production of factory sugar for the year 1944-45 was the lowest recorded since 1938-39, excepting for 1942-43 when it was some 7 lakhs of tons. The production of factory sugar in 1944-45 was only 9,53,500 tons as compared with 12,16,400 tons in 1943-44, and this quantity was much below the minimum requirements of the people of the country in recent years. Besides the other reason which we shall presently mention, the two main reasons for the poor output were shortness of the working season and the failure of as many as 24 factories, which were not able to work. In spite of restrictions imposed by the Governments, under the *Gur* Control Order, on the manufacture and marketing of *gur*, the supply of cane to sugar factories was inadequate. The gate areas of factories did not yield sufficient cane to keep them working for a full season. Coupled with the lowest production, there were also additional factors, which substantially contributed to the depleted stocks for internal use. Exports of sugar were allowed to neighbouring countries which were deprived of their sources of supply because of Japanese occupation of territories like Java, the Phillipines, etc. and large quantities were given away for the defence services demands. There was, therefore, naturally acute shortage for internal consumption. The candle was allowed to burn from both sides—lower production and extraneous demands—and the people in the country had to suffer hardships inspite of all efforts on the part of the authorities to enforce stringent laws of rationing, etc. The factors responsible for such a low production of sugar in the country were many. The manufacturers put forward their own reasons, and the authorities, while acknowledging the fact that there was a reduced output, pleaded helplessness in the matter over which they had no control. Giving an analytical picture of the causes which mainly contributed to the steep fall of production, Lala Gurusharan Lall at the 13th Annual General Meeting of the Indian Sugar Mills' Association held in November 1945, observed that among the causes for the fall in sugar production during 1944-1945, are (i) low prices of sugar and sugar cane, (ii) diversion of cane to manufacture of *gur*, (iii) compulsory saving scheme, (iv) lack of transport facilities and particular handicaps suffered by Bombay and Bengal Factories. The analysis of Lala Gurusharan Lall was, on the whole correct, and we have no doubt that many of the causes which contributed to lower output could have been over come by timely and adequate precautions. There were, however, certain obvious reasons why the authorities could not increase the prices of cane. It was urged that an increase in the prices of cane would have had an undesirable effect on the production of foodgrains in the country. It would have been more profitable, it was suggested,

to plant sugarcane if its prices were increased, and that would have adversely affected the Government efforts on the "Grow More Food" Campaign. Indeed some efforts in the direction of supplying manures and fertilizers would have accelerated the output of cane, and Government could have taken steps in this direction if they wanted to. Unfortunately, neither the long-range methods by way of irrigation facilities nor the short-term plans of providing manure and fertilizers were adopted to increase cane production.

The minimum price of cane fixed in U. P. and Bihar for 1944–45 was Rs. 0-14-0 per maund with a compulsory deduction of Rs. 0–2–0 to 0–3–0 per maund towards Defence Savings Scheme. The prices fixed for the 1945–46 season were 0–14–6 and 0–14–0 per maund for cane purchased at factory gate and outstations respectively. Cane growers in the U. P. and Bihar, finding that cane growing had become less remunerative, took to growing the relatively more profitable food crops in certain parts of the provinces of U. P. and Bihar, which are the main regions of sugar supply. We shall discuss this aspect of price fixation in more detail in the course of our review at a later stage.

Transport Position of Cane in 1944–45 in the U.P. and Bihar

The restrictions on the supply of wagons, due to wagon shortage, and severe control on supplies of Diesel Oil for lorries engaged in transport of cane from distances varying between 10 to 50 miles of the factory station led to a reduction in supplies of cane required by the factories whose requirements could not be met in full from areas adjacent to the factories. Thus, transport was a great bottleneck which substantially contributed to the lower yield of sugar output. The following official note, which we commend for serious consideration, gives a brief historical analysis of the transport position of cane in the United Provinces during the years beginning with the 1942–43 season and ending with the 1945–46 season:

"With the deterioration in the wagon position due to the war, a restriction on the movement of cane by rail was imposed for the first time in the season 1942–43, when the railways expressed their inability to provide the required number of wagons with the result that a large number of stations had to close down. Towards the middle of the season, however, the situation improved and most of the stations were re-opened for transport of cane. This improvement, however, did not last and the position further deteriorated during 1943–44 with the result that the Provincial Transport came to a decision that all stations lying between 10 and 25 miles of a factory during the season should be closed. This restriction was, however, not operative in respect of such stations as were found unsuitable from the point of view of alternative transport means. The restrictions as referred to above continued and was strictly followed during the 1944–45 season, on account of further deterioration in the wagon position, a large number of stations lying between the 10 and 25 miles distance were closed for booking. On account of the unsatisfactory position of cane crop and lower production of sugar, the cut in the

stations between 10 and 25 miles was restored later. The number of wagons for transport of cane was also fixed for the first time at 65,000 wagons on O. & T. Railway for the whole season and 300 wagons per day on the E. I. Railway. These allotments were found to be very meagure as compared with the requirements of cane transport, and a large number of the factories were closed down after working for a few months only the average days for which the factories worked were approximately 100. The situation got further worsened on account of various other factors, which resulted in a steep fall in the productive capacity of the factories the high prices of *gur* and low yields caused by stunted growth and poor littering due to scanty rains reduced the crushing capacity of U. P. factories to 1411.65 lakh maunds of which only 23.4 per cent was rail cane. The season 1945–46 was no better than the previous season, inspite of the obvious increase in the wagon fleet, which had been raised to 92,000 on O. & T. and 39o on the E.I. Railways respectively. The running of cane pilots and daily allotment of wagons on both the Railways were irregular and far from satisfactory. This naturally affected the off-take of sugar cane from out centres. A complaint to this effect was also received from a number of factories. The unfavourable price of cane as compared to other agricultural commodities is also one of the main reasons for reducing the crush to 13.94 crore maunds during the season. The percentage of rail cane crushed by factories during 1945–46 has been 19.8 against 23.4 of the last year.

Even the alternative means of transport were not available to the industry. Under normal circumstances, an appreciable quantity of cane is carried by bullock-carts. The war had even put a severe strain on the live-stock of the country; and bullock carts too were not easily available and those which could be made available were such as were proving uneconomic because of higher transport charges demanded by the cart-owners; the same was the case in respect of lorries. Even though some of the Lease/Lend lorries were available, the compulsory conditions imposed on factories to work them either with rectified spirit or gas plant, proved in many cases costly and uneconomic with the result that all cane from the outstations could not be tapped. The quantity of cane transport by road from outstations during 1945–46 was only 3.88 crores maunds."

Almost similar was the situation re: transport of Cane in Bihar during these three seasons.

These are some of the salient features of the season for the year 1944–45. The total production for the season 1944–45 as compared with the last two seasons was much lower, being only 953,500 tons, the production during the previous two seasons, viz: 1942–43 and 1943–44, being 10,70,000 tons and 12,16,400 tons respectively. The number of factories working during the season 1944–45 was 140 as compared with 150 and 151 for the previous two seasons. The above analysis should explain the reasons why there was such a great scarcity of sugar supplies in the country.

Small production in 1945–46 Season

So far as the season for 1945–46 is concerned, we gather from the Director, Imperial Institute of Sugar Technology, Cawnpore, that the estimated production of sugar directly from cane in 1945–46 reported by factories comes to 9.66 lakh tons as against the earlier estimate of 11.12 lakhs tons and the actual production of 9.54 lakh tons in 1944-45. (Vide *Indian Trade Journal* Dated 20th June 1946.) The production is expected to be slightly higher than that of the previous season. The main reason for the decrease is the shortness of the season in the United Provinces and Bihar by about a fortnight due to the inadequate cane supply. The cane crop also was adversely affected due to the failure of winter rains and the factories could not crush to their expectations. The average number of working days is estimated to be 95 in the U. P. and 81 in Bihar and 100 in the rest of India.

Fourth year of Control

The administrative machinery had fairly well adjusted itself to the control regulations passed from time to time. The experience gathered during the last four years was sufficient to enable them to regulate the supply of sugar to different districts and mofussil centres in the country. In our previous Annuals, we have made our observations regarding the control-machinery and stated that there was a good co-ordination of controls on *gur*, sugar etc. which ensured smooth distribution of the articles under reference. The various control orders and the modifications made therein have been duly incorporated and an attempt has been made to bring the information up-to-date as far as possible. (For text, see page xxiii).

Industry reconciled to Controls

The business community is generally averse to any sort of restrictions placed on their trading activities. In several cases, it was found that they were very vociferous in registering their strong protest against the operations of any restriction on their activities. So far, however, as the sugar control orders were concerned, it was found that the business community and the industrialists not only reconciled themselves to these controls but actually welcomed the operations and went to the extent of recommending their continuation till normal conditions were restored.

Rationing in Urban areas and Consumption of Sugar, in 1945 and 1946

In the last Annual we had suggested an increase in the quota of sugar allotted to each person in the areas where rationing was in force. There were two very urgent reasons why we had advocated an increase in the quota. First, there was an increased output of sugar and we felt that the consuming public must receive the advantage of this increased output. The sugar consumption in India is about the lowest in the world. It would, therefore, be in the fitness of things that the quantum of consumption should increase at the earliest opportunity. Sugar has energising qualities and a half-starved nation would be benefited if such an article was given in plenty. We were, therefore, always keen to support the increase in

the ration quota. Apart from this fact, there was another reason why we advocated an increase in the ration. Cutting down compulsorily the consumption of sugar in the country, we felt, would prove harmful in the long run for the permanent interests of the industry, and there was hardly any reason why India, a large sugar-producing country, should not have a liberal supply for its people. It was with these objectives in view that we recommended an increase in the supplies to the civil population. Unfortunately, however, the authorities, instead of increasing the quota, were perforce compelled to reduce the ration because of the poor yield of sugar during the period under review. The Government of Bombay made a reduction of 13% in the quota of sugar of the Bombay province for the "sugar year" ending November 30, 1945. In a press note, the Director of Information, Government of Bombay, stated "As a result of the reduction which the Government of Bombay have made, in consultation with the Standing Committees of the Food Advisory Council and the Food and Commodity Advisory Board the weekly quantum of ration for each individual will be reduced by 3 ounces in all large cities and towns. Thus, in Bombay city and the suburbs, the quantum will be 9 ounces instead of 12 ounces a week."

"In towns having a population between 50,000 and 1,00,000 the fortnightly quantum will be reduced from 16 ounces to 12 ounces and in towns having a population of 25,000 to 50,000 from 12 ounces to 10 ounces. No reduction will be made in the rationed towns having a population below 25,000 people, where the quantum will be continued to be 8 ounces each fortnight. In non-rationed areas, where the quantum is small, there will be a reduction of 1 lb. a year in the exisiting quantum."

"There will be a reduction of 25% in the quantities given to establishments for consumption by persons other than residents, whose quantum will be reduced to the same extent as the ration card holders in the respective areas. An additional reduction of 25% will be made in the quota of sugar given for the preparation of articles such as sweetmeats and confectionery."

The internal supply was further adversely affected because of the military demands and exports to adjoining areas. According to the estimates given by the Sugar Controller of India, it was understood that total exports to countries contiguous to India were approximately 18,000 tons and allocation to services was about 81,000 tons.

During 1946–47, it is not likely that the quantity allotted for consumption can be increased much, in view of the expected production in 1946–47.

Chief Features of 1944–45 *Season*

As stated before in our preliminary remarks, we recapitulate here the fact that the season 1944–45, was not as happy as the season 1943–44, so far as the sugar industry was concerned. As will be seen from the table given below, Madras was probably the solitary exception which had an increase in sugar

production during the season under review as compared with the last season. The main reasons for the low productivity during the year were, as we stated before, the transport difficulties and the comparatively low prices of cane offered to the growers. Even the number of factories which worked during the season dwindled, accompanied by a corresponding decrease in the number of days for which the factories worked. Of the 164 factories existing in India, as many as 24 failed to work in 1944–45. The season was also short—the average number of days worked by factories being only 98 in the U. P. and 78 in Bihar as against 131 and 93 respectively in 1943–44. The gate areas of factories did not yield sufficient cane to keep them working for a full season, while only limited facilities were available for transporting cane to factories from distant areas. The allotments of wagons on different railways for carrying cane between 10 to 25 miles were reduced by 33% as will be clear from the following figures:—

Railways	*Allotment of Wagons per day*	
O. & T. Railway	1943–44=1280;	1944–45=911
E. I. Railway	„ 495	„ 350

Even this reduced supply was found to be irregular, thereby preventing a steady crush by the factories.

Production of mill-made sugar (in tons) *by Provinces in* 1943–44 *and* 1944–45.

Province	*1943–44*	*1944–45*
Bengal	13,618	11,974
Bihar	2,12,612	1,69,529
United Provinces	7,26,957	5,25,862
Madras	39,137	46,690
Bombay	81,758	75,163
Indian States	1,22,855	1,13,725
All-India	12,16,130 (approx.)*	9,57,852 (approx.)*

It would be obvious from the table given above, that in the largest producing areas viz. U. P. and Bihar, the short fall was about 2½ lakhs of tons. An analysis, apart from the transport causes, would not be out of place, indicating wherever possible the reasons for this all-India shortage in the output during 1944–45. It should, we feel, be a suitable guide for correcting the errors, should they be of such a nature as warrant correction, either at the hands of the authorities or the manufacturers, and for augmenting production in the future.

The most important factor which affected the production of sugar in the U. P. and Bihar was, of course, the question of cane prices. In utter disregard of the advice tendered by the cane growers, as also the sugar manufacturers, the Government of India fixed prices of cane at only Rs. 0–14–0 per maund. These prices were not

* For final figures, see Tables Nos. 3, and 28 in "Sugar Industry at a Glance."

on a parity with the price levels of other commodities like wheat and therefore the availability of cane was greatly affected. In fixing up cane prices at a comparatively low level, Government put forward the argument that the interests of the consumers had to be safeguarded, but their chief anxiety was to see that the cultivation of other food crops was not affected in view of the great shortage of food in the country.

Another factor which affected the availability of cane for the factories was the compulsory deduction of 2 annas per maund of cane prices to be invested in Defence Savings, but fortunately this was done away with, although at a later stage. (February, 1945). The fixation of high prices for *gur* and the manufacture of *gur* in factory areas resulted in diversion of cane for the purpose of *gur*, as the cultivators found it more profitable to dispose of the cane for manufacture of *gur*.

The transport difficulties referred to above also resulted in a shortage of cane supplies for, in addition to the difficulties in getting wagons, petrol and tyres could also not be available to the mills for running lorries for transport of cane. The operation of the Gur Control Order whereby large quantities of *gur* were released at the commencement of the season for export also resulted in diversion of a lot of cane for *gur*, and factories who wished to start their season late in view of the expected short duration of the season were deprived of large quantities of early cane. Later in the season, a check was placed upon *gur* export, but had this not been so, production, would have been still smaller. While these were the principal reasons which were responsible for a shortfall in the production of sugar in the U. P. and Bihar, in Bombay the production was smaller due to the compulsory acreage which had to be put under cane under the "Growth of Food Crops Act," even in the factory areas. Shortage of supply of labour was also responsible for affecting production adversely. In Bengal, there was a universal shortage of cane, and cane areas being scattered and not being in the close vicinity of factories, production was considerably curtailed due to transport difficulties and apart from this, Bengal being in the war zone there being the dread of invasion from Japan, much attention could not be paid to the requirements of sugar factories in Bengal. Factories in Bengal had consequently a very short season of 40 days only and the production fell to 11,000 tons as against their rated capacity of over 70,000 tons per year.

The lack of supplies of manure and other fertilisers and irregular supply of other materials like sulphur, coal, lime, etc, also resulted in a lower production all round. On the whole however it must be stated that largely as a result of Government's policy in not fixing cane prices at a suitably high level due to their apprehension of causing inflation, the total production of sugar was curtailed and this had the necessary consequence, namely, of reduction of supplies of sugar to the various provinces, which in turn resulted in a reduction of the ration of sugar in various big cities in the country.

War and Sugar Prices

We do not think we can substantially add anything more to what we have covered in the last Annual. The war was still on during 1944–45 and there was greater demand of the commodity from all quarters. The Defence Services, the internal consumption and the exports continued to have their influence on the internal stocks and it was found practically impossible to give supplies to the satisfaction of the consuming interests, especially when there was a reduction in the production of sugar in the country. We have already mentioned at another place the reasons why there was a shortage and what the effects of this shortage were on the internal demand of sugar. Prices of sugar during the war did not rise to the erratic levels they did in some other cases, notably in manufactured articles, foodgrains and other consumer goods. It will be easy to substantiate this fact if we give a table of comparative price indices of various articles ruling in Indian markets.

Prices of week ending 19th August 1939 = 100.

Commodity		*February* 1945
Sugar	...	167
Rice	...	333
Wheat	...	388
Groundnuts	...	224
Tobacco	...	586
Cotton raw	...	194
Linseed	...	217

It will be seen from the table given above that the rise in prices of sugar was the smallest as compared with the rise in other commodities. The reasons are not far to seek. Cane and sugar prices were controlled by the authorities right from the beginning and distribution of sugar was canalised through Government agencies which left no scope for profiteering. Moreover, controlled rates of sugar were arrived at after a thorough and detailed investigation into all items which entered into the cost of manufacture. Sugar manufacturers and cultivators were both representing to the authorities the necessity of an increase in the cane prices, and with it of the prices of sugar. But knowing as they did the effects such a move would have on the food-crop cultivation in the country, Government did not act on the suggestions of the interests concerned. This fixation of sugar prices from time to time at a suitable level involves a larger issue of the relative profits that the sugar industry reaped, as compared with the profits of the other industries and we propose presently to disuss as far as possible, dispassionately, this question in the light of some studies made on this subject.

Sugar Industry's Controlled Profits

There has been a considerably strong feeling in the minds of sugar industrialists that the sugar industry, as a result of being controlled from the very

beginning of the war period and the prices of sugarcane as well as manufactured sugar having been fixed by the Sugar Controller, the amount of profit which the industry has been allowed to make has been extremely meagre. Indeed no opportunity has been allowed to it to make larger profits during the war period like for instance, the Indian Cotton Textile Industry. What is more, as the Sugar Controller fixed the percentage of profit as 10% of the block while arriving at the price to be fixed for sugar, the industry had no opportunity of making any additional gains, particularly so because although its cost of production went up due to the increase in prices of various raw materials, increase in the rates of wages, etc, during the war period, it was allowed only this 10% which was fixed in the beginning by the Sugar Controller. Apart from this, the lower production of sugar as a consequence of smaller cane crush also resulted in an increase in the cost of production, which was not adequately allowed for in the computation of the price fixed for sugar. Only last year, after a great difficulty a sum of 6 annas per maund of sugar was allowed to the industry to compensate them for the higher cost of production owing to the rise in prices of materials, but this was hardly enough.

It is a matter of regret also that no thorough and impartial study of the profits and the position of the industry during the war period has been made after analysing the balance sheets of a few representative factories, big and small, all over the country. "The Capital" of Calcutta published an article on trends of dividends in 1944 by Mr. P. C. Jain and there was some reference to the profits made by sugar factories therein. The Sugar Syndicate immediately sent a rejoinder to the "Capital" challenging the authenticity of the figures furnished by Mr. Jain on various grounds, e.g., the taking of the dividend figures of only 13 factories for arriving at the average dividend percentage, viz. 14.80% by the sugar companies in 1944, by the author of the article. The Syndicate also pointed out that his conclusion that the sugar industry paid record war time dividends was absolutely incorrect and that if he had taken more data into consideration, he would have arrived at a conclusion just opposite of what he had done. The Syndicate also attached a list of no less than 56 large sized efficient factories in the U. P. and Bihar during the year 1943–44 and stated that their average dividend was only about 6.7%. The Syndicate pointed out that 11 factories were not able to declare any dividend whatsoever, although the year 1943–44 was a very satisfactory one with a long crushing season. The Syndicate further pointed out that the situation in so far as profits were concerned would be worse for 1944–45 and from the 24 balance sheets which were then available to the Syndicate it appeared that the average dividend declared was only 5.03%.

In the issue of "Indian Sugar" for July, 1946, Messrs P. M. Nayer and S. N. Misra contributed an article on war profits in the sugar industry, and from the analysis made by them based on the published balance sheets of a few sugar companies, they came to the conclusion that the sugar industry had not done so

well financially during the war, as other major industries of the country, and that sugar factories in the U. P. and Bihar had done worse than factories in Madras and Bombay.

The authors of this article had also not before them, it seems, the balance sheets of a large number of sugar companies and therefore they seem to have relied upon the figures of a few sugar companies whose names appeared in the Stock Exchange List of Quotations. According to them the average net profit during the years 1939-40 to 1943-44 in the case of sugar companies (the number of companies analysed was 47) was 13.8% as compared with 29.6% in the case of cotton mills, 21% in the case of coal companies, 19% in the case of engineering companies, 20.5% in the case of paper companies, etc. The average annual dividend during the period has been 10% in the case of sugar, as compared with 17.2% in the case of cotton, 15.7% in the case of jute, 11.7% in the case of engineering companies, 7.8% in the case of coal companies, etc. We are afraid we are unable to comment on the conclusion arrived at by the authors in the absence of reliable and representative data, but from our general observation of the working of the sugar industry we feel that the industry has not done particularly well in the war period as it had no opportunity of making large profits and laying by large reserves for provision against depreciation, replacements, etc., as in the case of some other industries which were fortunately placed, e.g., Cotton, Steel, etc.

The industry, being rigidly controlled, was deprived of this opportunity, and while we are glad that this industry did not profiteer at the expense of the consumer during the war period, when the price level had already gone up so high, we do feel that the industry which has served the country so well during the war period by supplying sugar at satisfactory rates fixed by the Government from time to time, should be treated liberally in the future and should be allowed to build up a stable financial position in order to enable it to take care of any lean years which might come if there is any failure of the cane crops, shortage of cane, or outbreak of disease in the cane which would mean a smaller recovery, shorter working season etc. All told, we feel sure that the consumer and the State should be glad at the performance of the sugar industry which has kept the country supplied with its requirements of sugar at reasonable rates and has during the war period not exposed itself to the charge of making any unduly large profits in any shape or form. We also suggest that in appreciation of this, the State should take a liberal view when fixing the prices of sugar by computing the cost of production in a manner which would enable this industry to make fair profits and ample provision for replacements to machinery, depreciation etc.

Decrease in Supply of Sugar to the People.

During the year 1946, as a result of the apprehended reduction in the total supplies of sugar, the Sugar Controller was compelled to reduce the allotment for

various provinces in India. The quota for Bombay was reduced by 13 per cent from 31st March 1946. Similar reductions have also had to be made in large cities and towns. For instance, in towns having a population of 50,000 to 1,00,000 the fortnightly quantum was reduced from 16 oz. to 12 oz. and in towns having a population of 25,000 to 50,000, from 12 oz. to 10 oz. in non-rationed areas where the quantum was already small, there was a further reduction in the existing quantum. Madras had also to share a similar fate as a result of the cut in the sugar quota during the year 1946.

In consequence of a reduction in Bengal's sugar allotment the quantum of ration in Calcutta was reduced from 8 oz. to 6 oz. per head. There is no ration of sugar like what obtains in the principal cities of other Provinces, in the United Provinces.

Restriction on Movement and production of Gur since* 1943–44

Since the 1943–44 season, the Governments of U. P. and Bihar have been controlling the manufacture of *gur* and movements of *gur* in their areas. They have on some occasions banned the export of *gur* to any area outside the province in the U. P. The Bihar Government, in the interest of the *gur*-eating population of Bihar, also banned the export of *gur* from the province in the earlier period and also in 1946, when found necessary.

The Government of Bombay also decided to ban the export of *gur* from the province in April, 1946, and they also brought under restriction the inter-district movements of *gur*. Specific quotas of *gur* were allowed to the Gujarat Districts, Bombay City and Bombay suburbs from the *gur* producing districts of Nasik, Ahmednagar, Poona, Satara, Sholapur and Belgaum. Rationing of *gur* was also introduced in Bombay City in June, 1946. In September, 1946, however, the Government of Bombay reviewed the situation again and decided to withdraw the control over the distribution and prices of *gur* in the province, with immediate effect. With a view, however, to conserving the stocks of *gur* within the province the existing ban on export of *gur* by road, rail, river, or sea from any place within the province to any place in India or outside it continues to remain in force. The Government of the U.P. have also altered from time to time the prices of *gur*, although the price of sugar has remained unchanged. For instance, the price of *gur* per maund which was Rs. 10–8–0 before April, 1946, was raised to Rs. 11–8–0 in July, 1946.

Restriction on Sugar allowed to be carried as Personal Luggage

With effect from July 1946, the Sugar and Sugar Products Control Order, 1946, was amended in respect of clause 8. After the amendment the transport of sugar allowed to be carried as personal luggage of a *bona fide* traveller has been fixed at 5 seers, as against 20 seers as before.

* For Statistics of total production of *Gur* in India, see Table 27 in "Sugar Industry at a Glance".

Sugar Control instituted in 1942

As pointed out above, the war with Japan created a new situation for the sugar industry in India. It was in the 1941-42 season that control was instituted over the industry by the Sugar Control Order of the Government of India which was brought into effect from the 14th April 1942. The sugar industry was thus the first industry to be brought under central control in India. A detailed reference to the Sugar Control Order and the powers conferred on the Government for fixing ex-factory prices for sugar registering dealers, control over the distribution of sugar from factories to specific markets, arrangements of transport facilities, fixation of consumption quotas for provinces, etc. was made in the previous *Annuals* (see 1943 and 1944 *Annuals*) and therefore it need not be repeated here.

At the time when control was established, everyone connected with the industry had the definite feeling that due to low prices fixed by the authorities the sugar producers had been unduly penalized and that the Government were very severe in restricting the margin of profit for the sugar industry. It was also one of the grievances of the industry that before controls were brought into existence it was not consulted properly and that the suggestions made by the manufacturing interests in the matter of distribution and prices were completely disregarded. A section of the industrialists viewed the control measures with suspicion and took the line that controls were unnecessary and unwanted as they would hamper maximum production of sugar and free distribution of it through proper trade channels. There was a strong move urging de-control as the only means of restoring order in the sugar industry.

At the outset there were also a number of glaring defects in the operation of controls. Due to lack of experience and other handicaps in the beginning, existing channels of trade were not utilized and delays in despatches of sugar were frequent causing considerable handicaps. The mills were also unable to adjust themselves to the new conditions. But in course of time the system of zoning and proper regulation of transport resulted in improved distribution of sugar towards the end of the year 1943.

The improvement in the conditions of distribution was more satisfactory in the second year of control and the Sugar Controller was responsible for the quick despatches of sugar to the various areas according to schedule. The stock position at the end of 1943 was very satisfactory and despite the congestion on railways due to war-effort, wagons for transport were found for as much as 7 lakhs tons for the year 1942-43. The existence of "black markets" was curtailed to a greater extent than before, although black markets still prevailed at some places in the country due to the fact that the margin of profits allowed to the traders under control was very small.

Functioning of Control in 1943–44, 1944–45 *and* 1945–46 *Seasons*

As far as the year 1943–44 was concerned, we must say that the control machinery had been greatly improved both because of the appreciable experience that the Government officials acquired, and also because of the co-operation of the consuming public. Though black market operations did not completely disappear, as they never do so long as there are controls and there is a shortage of goods, still it must be said that taking into account all the factors, viz: relative insufficiency of stocks, increased demand from the military, exports outside the country, the people in India did get the rationed *per capita* quota allowed to them under the rationing system. The picture for the 1944–45 and 1945–46 seasons, however, changed slightly with the reduction in the output of sugar. There was uneasiness in the market, and people had to content themselves with small quantities. The position in the mofussil centres grew more and more unsatisfactory. People in villages always complained against the miserly quota allotted to them and there being no rationing as in big cities, the actual distribution of sugar to the final consumer left much room for black markets and this was responsible for a great deal of suffering for the poor people in villages and smaller towns. In many cases there used to be a scramble for sugar and kerosene. Controls, however, on the whole worked satisfactorily with the exception of a few places where black markets flourished on occasions due to the great shortage, and defects in channels of distribution of the Provincial Governments and Indian States.

Future Development—Sugar Panel's Recommendations (1946)

This picture would be incomplete if we were not to refer here to the step which the Planning Department of the Government of India took in 1945 in appointing a panel to investigate the various possibilities of increasing the sugar output in India. Unfortunately, the report of the panel submitted to the Government is not available at the moment, but from whatever information has appeared in the daily press, we are inclined to believe that some of the findings of the panel are certainly important and demand our scrutiny. In the report submitted to the Government's Post-war Policy Panels Committee, the Panel for Sugar, Alcohol and Food Yeast, as the Panel referred to above is called, observes that the normal production of sugar in India is 11 lakh tons a year as compared with 1.58 lakh tons in 1931-32, the year in which protection was granted to the industry. Before the war, it says, India had already become self-sufficient but owing to various factors, demand is now 50 per cent higher than in 1939. The report, accordingly, sets a target of production of sugar to be reached at the end of ten years at 18 lakh tons, of which about one lakh tons, it is significant, should be for export. In this connection, a warning has been conveyed to the sugar industry in India against competition from other countries, and the Report rightly observes that it has become essential to be prepared for competition from Java and other countries not only in India but in neighbouring markets to which India may like to export sugar.

The next question which the Panel sets to itself for reply is the method by which the target production of 18 lakh tons of sugar, as noted above should be reached. It suggests two courses for the purpose, viz., enhancing the capacity of the existing factories, and establishing new factories. In regard to the former, a suggestion has been made that factories with a crushing capacity of more than 250 tons and less than 800 tons should be encouraged to expand to the latter capacity.

Province-wise allocation of 20 New Factories

In regard to establishment of new factories, the report of the Sugar Panel recommends the allocation of new factories territory-wise as follows, and the Government of India have accepted this recommendation.

Provinces or States	*No. of New Factories permitted.*
Travancore	1
Hyderabad	1
Baroda	1
N. W. F. Province	1
Bihar	1
Madras	3
Bombay (Including one for Sind)	4
The Punjab	3
Bengal	3
Assam and Orissa (one each)	2
Total ...	20

The allocation of 25 additional factories to cover a capacity of 2½ lakh tons will be made later by the Government of India.

The Sugar Panel appears to be of the opinion that State control of prices and distribution of sugar is necessary but not State ownership or management. It says that there should, however, be Central Control, exercised in close collaboration with local Governments over such matters as location of new factories and sizes and specifications of plant and alterations to existing units. It is of the opinion that the Central Executive Authority should be an official Controller who should be advised, on policy, by a representative board and, on technical matters by a committee. It is stated that distribution of sugar should be by an organisation, membership of which will be compulsory for all factories. Efforts should be made, it says, steadily to reduce costs and continuation of tariff protection for five years is advocated with an eye to reduce the level gradually along with the excise duty. It has recommended that KHANDSARI sugar should pay the same duty as the products of vacuum pan factories.

The Capital goods required by the industry is estimated to cost from Rs. 10·5 crores to Rs. 11·5 crores. Advice has been tendered that machinery should be manufactured as far as possible in India.

Sugar and Sugarcane Prices for the Season 1945-46.

The Sugar Controller on the recommendation of his Advisory Committee announced that the cane and sugar prices would continue for the 1945-46 season at the level at which they were fixed for 1944-45. The Governments of the U. P. and Bihar, fixed the minimum cane prices at Rs. 0-14-6 for gate cane and Rs. 0-14-0 for outstation cane as against the minimum cane price of 0-14-0 fixed for the 1944-45 season. Similarly, the Bihar Government re-imposed the cane cess at the rate of 0-1-0 per maund in addition to the minimum cane price of Rs. 0-15-0. The U.P. Government also levied the cess at Rs. 0-1-0 per maund of cane.

Causes for Decline of Production of Factory Sugar in 1945-46.

The production of sugar for the 1945-46 season, was estimated at the beginning of the season to be very much higher, but ultimately it was only about equal to the production of the 1944-45 season. The results in the U.P. and Bihar were very disappointing. This also upset the Sugar Controller's programme of allotment of sugar to the various provinces and the quotas to various areas had to be cut by 13 per cent in 1945-46. The estimated production of sugar directly from cane in 1945-46 will amount to only about 9.66 lacs tons (as against the earlier estimate of 11.12 lacs tons) as against the actual production of 9.53 lacs tons in 1944-45. The main reason for the decrease was the shortness of the season in the U.P and Bihar by about a fortnight due to inadequate cane supplies, and the utilization of cane in the manufacture of *gur*, in spite of the ban introduced by the Government of U.P. earlier in the season, due to the attractive prices actually realised for *gur* and for *khandsari* sugar. The cane crop also was adversely affected due to the failure of the winter rains and the factories could not crush to their expectations.

The average number of working days, according to a note published in the "Indian Sugar" for June 1946, was 95 in the U.P., 81 in Bihar and 100 for the rest of India. 145 cane factories were reported to be working during 1945-46 season as against 140 in 1944-45. Recapitulating the causes for the drop in production, it must be stated firstly that the U.P. Government went wrong in their estimate of the acreage under cane for the 1945-46 season and their expectations of higher quantities of gate cane being available. It is true that they introduced a ban on the manufacture of *gur* in the Reserve areas of the factories early in the season with the intention of preserving cane supplies of factories, but unfortunately this order could not be effectively enforced, and factories did not get the quantity of cane which was expected. Another factor was the unavailability of cane to factories from stations at some distance which were closed down in the previous years for saving transport. This effectively cut down the quantity of rail-borne cane.

The high prices of *gur* and *khandsari* were also responsible for the diminution of the quantity of sugarcane for the factories. Although the ceiling price of *gur*

was fixed by Government at Rs. 9-5-0 per maund, the prevailing rate in the market was higher by about Rs. 2-0-0; and although the ceiling price of *khandsari* was fixed at Rs. 16-4-0 per maund, the ruling rate was far higher, anything from Rs. 20-0-0 to 25-0-0. Thus in the *khandsari* manufacturing areas also the factories suffered in respect of their cane supplies.

Khandsari prices raised to Rs. 18-8-0 *per maund.*

The price of *khandsari* sugar having been raised from Rs. 16-4-0 to Rs. 18-8-0 per maund, i.e., by Rs. 2-4-0 over the standard price of crystal sugar D.24, later in the season, it became possible for cane growers to divert their cane to *khandsari* manufacturers who could easily pay about 2 annas more per maund for the cane, firstly because their excise duty is only a third of what it is on factory sugar, they have no cane cess to pay, have to bear very little transportation charges, and above all, they could get a price far higher than the ceiling price fixed, namely, Rs. 18-8-0, for their sugar in the actual market. Although, therefore, *khandsari* is a comparatively inefficient method of production, the extraction of sugar being only about 6% as compared with 10% in vacuum pan factories, it was possible for *khandsari* to deprive the factories of their cane by paying a higher price therefor. And above all, wagon shortage, and shortage of petrol, diesel oil, etc. also disabled the factories from using lorries for transport of cane. In addtion to all these, the agriculturists were handicapped by not getting manure, agricultural implements and bullocks, to say nothing about the increased cost of labour for ploughing the field, etc.

Special prices of sugar in certain areas, in 1945-46.

The concessions of special sugar prices given by the Sugar Controller for provinces like Bengal, and Punjab* in 1945-46 with a view to increase sugar production in those areas also were not of much avail except in Bengal where the production was 26,300 tons, more than double the production of 1945-46. (see p. 30).

It is hoped that in order to stimulate the production of sugar during 1946-47, the authorities will increase the price of cane to a suitable level bearing in mind the increase in the cost of production of cane and the necessity of giving a fair deal to the sugarcane cultivator comparable with the return from other food crops. A price of about Rs. 1-2-0 to 1-4-0 per maund of cane is suggested.

Working of the Mills and Duration of the Crushing Season in 1945-46.

In the season 1945-46, 145 factories were estimated to work compared with 140 in 1944-45. Till the end of November only about 19 factories had started working, while a large majority of them began working during and after December. As stated in a previous paragraph the average number of days worked by the factories in the U. P. was about 95, and in Bihar 81.

---

* *Vide* page xix in "Sugar Industry at a Glance," showing highest cane-prices in those provinces and page 25 for higher sugar prices allowed.

Prospects for 1946–47 *Season*

The position so far as yield of sugar from different factories in the U. P. and Bihar, which constitute the main source of supply of sugar is concerned, does not show much improvement in the estimates for the 1946–47 season, and we feel that at least before 1947–48, the country will not get as much sugar as she requires. It is true that the military demand is greatly reduced, and to that extent the supply for the civilian consumption might increase, but we would be wrong in coming to the conclusion that the people can enjoy the luxury of sugar even to the extent of their present requirements, before 1946–47.

Higher Minimum Price of Cane in 1946–47 *recommended*

Towards the beginning of 1946–47 season, which will commence in October-November, 1946, there are good reasons to hope that the production of sugar will be somewhat higher than the previous two seasons, firstly, because the Congress Governments in the U. P. and Bihar will do their best to safeguard the interest of cane growers and recommend to the Government of India the fixation of a higher price for sugarcane in the region of about Rs. 1-2-0 per maund, even at the risk of increasing the price of sugar for the consuming public. After all, as we have observed before, the price of sugar which has been controlled from the beginning of the war, has been kept very low in comparison with the prices of other articles and there is no reason why the sugarcane grower should not be given a fair price and be enabled to ameliorate his condition. The difficulties of transport will be minimised this year and if the control over *gur* is properly organised and enforced, factories should have their normal crush. If there is an uninterrupted supply of other materials like sulphur, coal, lime, etc., factories will be able to work smoothly and will be able to crush for a larger number of days than the last season. The recovery of sugar may also be slightly higher than the last season (1945–46). The present official expectation of production for 1946–47 is 10½ lakhs tons.

Control on Khandsari recommended

We feel, however, that the Government of the U.P. should put a proper control on the manufacture of *khandsari* and *gur*, particularly the former, for if the prices of *khandsari* are allowed to soar as they have been allowed to during the months of July and August 1946 as a result of the relaxation of the control on the movement on *khandsari* sugar by road as well as rail in the province, the quantity of cane available to the factories will be seriously reduced and the production from *khandsari*, which is very uneconomic due to the low recovery will be increased to the detriment of production of factory sugar. And this will be a national loss. We hope that this aspect of the necessity of proper control on price and movement of *khandsari* sugar will not fail to catch the eye of the Government of U.P. in good time and will result in a proper control being instituted on *khandsari* sugar, out of regard for the increased production of sugar in the country by the sugar factories, out of cane supplies, in a more economic manner.

Details Regarding the Working of the 1944–45 *Season*

In the season 1944–45, 140 factories worked out of a total of 164 factories existing in India, as against 151 in 1943–44. 23 factories did not operate and one had been excluded since it was a small experimental factory for training students with a nominal output. The number of factories working in the United Provinces was 67 as against 70 in 1943–44 and 71 in 1942–43. The number of factories in Bihar was 29 in 1944–45, while in 1943–44 it was 31. In Bengal and Indian States there was a slight change, viz. from 6 to 4 and 18 to 16 respectively, during the 1943–44 and 1944–45 seasons. The number of factories which worked during the 1944–45 season dwindled down to 140 as compared with 151 in 1943–44 and 150 in 1942–43. This phenomenon of a reduction in the number of factories can be accounted for principally on the ground that the factories were not getting adequate supplies of cane, and for certain other reasons enumerated in our previous discussion.

Duration of Cane Crushing and Number of Working Days

In our last Annual we made certain observations regarding the supply of cane and the number of days worked during 1943–44 seasons. The position in this respect had completely changed during 1944–45 season. During this season the maximum number of days worked by any factory in the U.P. was 134, while the figure for Bihar was 120 and for "all other provinces" it was 232. The minimum number of days worked during this season for the U.P., Bihar and all other Provinces was 33, 46 and 21 respectively, the number for the whole of India being 21. The average number of days worked by factories was only 98 in the U.P. and 78 in Bihar as against 131 and 93 respectively in 1943–44.

Quantities of Cane Crushed in Mills in 1944–45

In the United Provinces the crushing season extended from the beginning of December to the middle of April and in Bihar from the last week of December to the end of March. Crushing generally started late and the season on the whole was shorter than in 1943–44. The production of sugar directly from cane in India totalled 9,53,500 tons in 1944–45 season against 12,16,400 tons in 1943–44 and 10,70,300 tons in 1942–43. The production in 1944–45 was less by 23.9% as compared with the 1943–44 season. The maximum quantity of cane crushed by any factory in the U.P. was 2,06,800 tons as against 2,86,800 tons in 1943–44; the minimum 18,700 tons against 3,700 tons in the previous year, and the average quantity 77,400 tons against 1,04,700 tons.

In Bihar the maximum quantity crushed was 99,500 tons, the minimum was 29,700 tons, while the average was 54,800 tons, the corresponding figures for 1943–44 being 1,30,000 tons, 1,300 tons and 65,100 tons. Like the last two seasons, this year too Bihar had a poorer crush.

In "all other provinces", the figures of cane crush for maximum, minimum and average were 2,25,000 tons, 3,000 tons and 58,400 tons, the corresponding figures of 1943–44 season being 2,03,000, 300 and 55,700 tons.

The maximum quantity of cane crushed for any factory per day in the U.P. in the 1944–45 season was 1,940 as against 1,903 in 1943–44, the minimum 283, while the average was 793—the corresponding figures for 1943–44 being 46 and 803 respectively.

The figures for Bihar for any factory per day were: maximum 984 against 1,080; minimum 459 against 107; and the average 699 against 720 tons.

In "all other provinces" the maximum, minimum and average number of cane crushed in tons for any factory per day were 1,757; 32,524 respectively as against 1,903; 14 and 760 in the 1943–44 season.

For the whole of India, the maximum, minimum and average quantity of cane crushed by mills per day were 1,940; 32; 681 in 1944–45, against 1,903; 14 and 708 in the 1943–44 season.

Quantity of Sugar Produced in 1943–44 *and* 1944–45 *Seasons*

The production of sugar directly from cane in modern factories in India amounted to 9,53,500 tons in the 1944–45 season, against 12,16,400 tons in 1943–44 and 10,70,700 tons in 1942–43. There was a considerable fall in 1944–45 as compared with the production in the preceeding two years. The production in 1944–45 was 23.09% lower than in 1943–44. As pointed out in the earlier discussions, the lower yield was due to transport difficulties, short season and inadequate supplies of cane.

Details of Cane Crushed and Sugar Produced in Different Provinces During the 1944–45 *Season*

In the U. P. the number of factories working in the year 1944–45 was 67 as against 70 in the last year. The quantity of cane crushed was 51,85,900 tons as against 73,32,400 tons, while sugar produced was 5,28,900 tons against 7,27,100 tons. Molasses produced in the province was 1,74,800 tons against 2,62,600 tons in the last season.

In Bihar the total quantity of cane crushed by 29 factories was 15,88,600 tons as against 20,18,400 tons in the previous season. The number of factories working in the last season was 31. The quantity of sugar and molasses produced was 1,69,900 and 5,300 tons respectively, as against 2,12,400 and 68,300 tons during the previous season.

In Bombay the number of factories remained the same, viz. 10 as in the last season, and the quantity of cane crushed was 6,94,200 tons as against 7,39,700 tons. The quantity of cane crushed during the previous two years was higher

than in 1944–45. The quantity of sugar and molasses produced in the province was 74,900 and 27,300 tons as against 81,200 and 28,700 tons respectively during the previous season. In Madras only 10 factories worked as against 12 in the last season. The amount of cane crushed, sugar and molasses produced was 5,10,400; 46,500 and 20,900 respectively, as against 4,20,400; 39,200 and 17,900 tons during the last season. In the Punjab, Sind and N.-W.F. the number of factories, cane crushed, sugar and molasses produced during 1944–45 was 2, 1,25,100; 1,20,300 and 3,700 as against 2, 1,74,200; 17,400 and 5,500 in the previous season.

So far as the figures for Bengal are concerned, it is found that during the season 4 factories worked against 6 in the last season. The quantity of cane crushed, sugar and molasses produced was 1,23,100; 12,000 and 4,900; the corresponding figures for the last season were 1,75,900; 13,600 and 8,200 respectively. As regards Orissa this year only one factory worked as against 2 of the last season. The quantity of cane crushed, sugar and molasses produced being 24,400; 2,600 and 1,200 respectively the corresponding figures for 1943–44 were 17,600; 1,700 and 800. In the Indian States 16 as against 18 of the last season factories worked. The respective figures of cane crushed, sugar and molasses produced were 10,91,600; 1,06,400 and 41,600—the corresponding figures for 1943–44 being 12,59,200; 1,23,800 and 46,700 tons.

Percentage of Recoveries of Sugar from Cane in 1944–45

The recoveries of sugar from cane was, it may safely be said, higher than it was in the previous year. Taking the figure of recovery for the whole of India, it could be said that whereas the recovery in 1943–44 was 10.02, in the year 1944–45 it was 10.21. This was a distinct achievement during this year, especially when we know that factories were not happily placed in getting all their requirements. There is a hope that with the assistance of technical experts, fertilisers and researches to be made in this direction in the years to come, and with the improvement in the quality of cane, the recovery may show some improvement.

The highest recovery for the season was 10.79 in Bombay, though it compared unfavourably with the recovery recorded during the last season, when it was 10.98%. It would be interesting to see the recoveries in various areas during the season and compare them with the last season. In the U.P. it was 10.20% as against 9.92% in 1943–44. In Bihar it was 10.09% as against 10.53% in 1943–44. In Bombay it was 10.79%, in Madras it was 9.11%, while for the Punjab and the N.-W.P. it was 9.83%—the corresponding figures for these areas for 1943–44 were 10.98%, 9.32% and 9.99% respectively. Figures in connection with the same for Bengal, Indian States and Orissa for 1944–45 were 9.75%, 9.75% and 10.65% as against 7.73%, 9.83% and 9.66% respectively during 1943–44.

Sugar Production(Estimates) in the 1945–46 Season

As we stated before, the estimated production of sugar during 1945–46 is not likely to be appreciably more than the 1944–45 season. It is true that the war came to an end in August 1945 and the industry ought to have received better transport facilities, but there were other factors, viz. failure of the winter rains, and a reduction in the number of days for which factories in the U.P. and Bihar could work, due to lack of cane supplies, some having been drawn away for *gur* manufacture. According to the second memorandum on the production of sugar directly from cane in modern factories in India, it was estimated that the production of sugar for the 1945–46 season was only 9.66 lakhs tons as against the actual of 9.54 lakhs tons for 1944–45. There was therefore an insignificant increase of 0.11 lakhs tons in 1945–46 as compared with the last season. We are not repeating here the ground we have already covered, as regards the number of factories that worked during the season and the days it could work. A discussion according to various areas would, however, not be out of place. A large number of factories in India closed their working at the end of April. Only 16 factories worked till the end of May. The recovery of sugar from cane during 1945–46 is estimated at 10.10 as against 10.21 for 1944–45. The quantity of cane crushed was only slightly higher at 95,67,300 tons against 93,43,300 tons in 1944–45.

Sulphur Supplies and Sugar Production in 1945–46 and 1946–47

We had made certain observations regarding the supply of sulphur to various sugar factories. We had visualised the possibility of more sulphur being made available during the season in view of the international political situation, when imports of sulphur could be made to meet the requirements of sugar factories. The position as we go to press, as revealed by the Sugar Syndicate journal in their issue of June 1946 in regard to the supplies and stock positions of sulphur with sugar factories is as under :—

"About 2,000 tons of sulphur (American Rock) are expected to arrive in Calcutta where distribution would be effected to the factories. Each factory's allocation has been made on the basis of a formula supplied to the Syndicate by the Food Department. The factory's crush in a normal year was also taken into account for determining the allotted quantity. We believe that with this consignment of sulphur, the Syndicate would be able to meet 50% of the member's requirements for the next season 1946–47. It is a noteworthy fact that, owing to short crush in the current season, many factories have not used up fully their last year's allotment. If political conditions in Italy improve, the industry should be able to get Sicilian sulphur at cheaper rates. Besides, Java is also a supplier of sulphur for India. But even here political disturbances forbid any commercial negotiations."

Sugar Prices in 1945–46

While discussing the question of sugar prices in 1944, we had stated in the last Annual that the Government of India by their notification dated 21st October 1944 increased the price of white sugar by Rs.1–7–0 and the *Khandsari* price by Re. 1 per maund for the season 1944–45. An ordinance was also promulgated to levy a temporary excise duty on sugar at Rs.1–7–0 per maund on all stocks of sugar held by the factories and dealers on that date. We had also observed in this connection that the increase in the ex-factory price of sugar was intended to enable the Provincial Governments to fix a higher minimum cane price during the 1944–45 season. With the increase in the price of sugar, the price, of cane was also increased. The Sugar Controller of India under clause 6 of the Sugar and sugar Products Control Order 1943 in modification of the Government of India Food Department Notification No. 22 SC(4) 44 dated the 21st October 1944 further increased the price of sugar as under :

"(i) The price at which *Khandsari* sugar may be sold wholesale within the districts of the United Provinces specified in the annexed schedule shall not exceed Rs. 18–8–0 per maund."

"(ii) The wholesale and retail prices of *Khandsari* sugar in other places in India shall not exceed Rs. 18-8-0 per maund plus such other charges in respect of transport to or in specified areas and other incidental charges as are approved by the Sugar Controller."

The expression "wholesale" in clauses (i) and (ii) above means the price of sugar inclusive of Excise Duty packed in bags of not less than two and a half maunds in weight.

SCHEDULE

Bareilly	Morarabad
Bijnor	Muzaffarnagar
Kheri	Pilibhit
Meerut	Shahjahanpur
	Sitapur

By another notification dated the 5th March 1946, in modification of the Food Department notification dated 21st October 1944, the Sugar Controller of the Government of India increased ex-factory price per maund of sugar candy (*misri* and *sakar*) from Rs. 20–7–0 to Rs. 20–13–0 and of Bura from Rs.17–11–0 to Rs. 18–1–0. As regards prices of various other grades of sugar including crystal, we have given these in detail under our section on Sugar Industry at a Glance (page xiii).

In the case of Bengal and the Punjab factories, there were some changes in view of the concession given in the price of sugar, in 1945–46.

They are given below * :—

Name of factory or area	*Concessions allowed*
(*i*) All Sugar factories in Bengal	Allowed to add Rs. 3 per maund to the ex-factory price of sugar. These factories have however not been allowed the increase of Rs. 0–6–0 per maund to the ex-factory price notified under notification of 5–3–'46.
(*ii*) Abdullapur (Punjab)	Allowed to add Rs. 0–5–0 per maund to the ex-factory price.
(*iii*) Phagwara (Kapurthala State)	Rs. 0–14–0 per maund + ex-factory price.
(*iv*) Hamira (Kapurthala State)	Rs. 1–12–0 per maund + ex-factory price.
(*v*) Rahwali (Punjab)	Rs. 1–8–0 per maund + ex-factory price.

The ex-factory price of the datum quality D–24 continued to be Rs. 14–13–0 per maund upto 20th October 1944 when it was raised to Rs. 16–4–0 per maund with effect from 21st October 1944. It has further been increased to Rs. 16–10–0 per maund with effect from 5th March 1946.

It is a moot point whether the manufacturers were satisfied with this small increase of 0–6–0 in the price of sugar. The labour cost including the cost of cane had considerably increased and whatever little increase was made in the sugar prices was off-set by the increase of the cost of cane alone. Our observations as stated in the last Annual would under the circumstances hold good even for the revised rates and we do not think we can add anything more to what was said before.

Schedule of Sugar Prices for 1945–46

The schedule of sugar prices ex-factory controlled rates announced by the Sugar Controller for India on 21st October and revised under the two separate notifications referred to above still continue. The various ex-factory prices have been fixed on the basis of the sugar standard for different grades. Sugar of D24 quality is reckoned as the standard grade and other grades are priced according to the difference in quality from D24. Sugar of D24 quality is fixed at Rs. 16–10–0 per maund as from 5th March 1946.

Bihar & U.P. Sugar Control Act Extended Upto 30th June 1950

During the year 1946 the U.P. and Bihar Governments amended the U.P. and Bihar Sugar Factories Control Act and extended its life to the 3oth June 1950. The Act, as amended, also provides for the banning of unsuitable varieties of cane

*(*Vide* letter from the Sugar Controller of India, 20th April 1946).

and for checking sales of cane in the reserve area of a factory to persons other than the occupiers of the factory.

Technical Committee set up in U.P. and Bihar to help Factories

By an amendment to the United Provinces Sugar Factories Control Rules, 1938, the U.P. Rural Development (Cane) Department under a notification dated the 28th November 1944 announced the setting up of a technical committee to help and assist the factories with advice on all technical problems. The technical committee's life expired on June 30, 1946, and the Governor by a notification No. 995–S/XIIC–95/1946 dated the 25th July 1946 reconstituted the committee for a further period of one year with effect from 1st July 1946, with the following members to constitute the same:—

(*a*) (1) The Director, Imperial Institute of Sugar Technology, Cawnpore *Ex-officio*
(2) The Cane Commissioner, U.P. „
(3) The Cane Commissoner, Bihar „
(4) Mr. J. Macniven, Durbhanga Sugar Co. Ltd.
(5) Mr. A. Caws, Cawnpore Sugar Works Ltd.
(6) Mr. Kunwar Krishna Chandra, L.H. Sugar Factories and Oil Mills Ltd.

(*b*) and to appoint the Director, Imperial Institute of Sugar Technology to be the *ex-officio* Chairman of the Committee and the technical expert for sugar factories in the United Provinces and Bihar to be the *ex-officio* Secretary of the Committee.

The main functions of the Committee, as defined under section (6) were to advise the Provincial Government with regard to:—

(*a*) the establishment of new Sugar Factories in the Province;
(*b*) the additions or alterations in the existing plants of sugar factories in the province;
(*c*) determination to the crushing capacities of the existing sugar factories in the province;
(*d*) additions or alterations carried out by a factory in contravention of the provisions of Section 9 of the Act; and
(*e*) other technical and incidental matters connected with these functions as may from time to time be referred to it by the Sugar Commissioner or the Provincial Government.

Rules framed under the Act were to govern the procedure for meetings of the Technical Committee set up as above. The establishment of the Technical Committee is a welcome sign of the interest that the U.P. Government has been evincing in conserving and developing the sugar industry on right lines in that province. Technical advice on various matters is required by the mills and also the authorities for the purposes of planning. The Committee can have the benefit

of the advice of the Central Sugar Cane Committee, which has been given a sum of Rs. 1 crore and 25 lakhs for the development of sugarcane industry in the country. This Technical Committee will also function for Bihar.

Sugarcane Survey for India, 1945–46

The need for a comprehensive survey of the Indian sugar industry was never more urgent than today, when the post-war plans for every industry have been on the anvil. Sir T. S. Venkataraman, formerly of the Imperial Sugarcane Research Station, Coimbatore, was conducting a comprehensive survey on behalf of the Imperial Council of Agricultural Research, but had to give up the work owing to ill-health. The work was undertaken by Mr. N. L. Dutt, Director of the Imperial Sugarcane Research Station, Coimbatore. The investigations have been finished and Mr. Dutt has submitted his Report in 1946 to the Government of India in which he has recommended useful measures to be taken to improve the cultivation of sugarcane in India. A reference to this is made in Part II of this *Annual.*

Central Sugarcane Committee founded in June 1944

The establishment of the Central Sugarcane Committee to promote and safeguard the interests of the future of the sugar industry was a step in the right direction. The Government of India's draft resolutions on the subject intimating the proposal to set up the Central Sugarcane Committee on the lines of the Indian Central Cotton Committee or the Indian Jute Committee was circulated among the various sugar interests in the country in December 1943 to elicit their opinions and suggestions. The text of the draft resolutions was published in the Sugar Industry Annual, 1943.

Under a notification dated the 6th June 1944, issued by the Government of India Department of Education, Health and Lands, New Delhi, it was announced that the Government of India had accepted the draft resolution and the recommendation to set up the Central Sugarcane Committee to be a Body Corporate registered as a society under the Registration of Societies Act 1860—the text of the resolution was published in the Sugar Industry at a Glance, 1944 Annual.

Functions of the Indian Central Sugarcane Committee, 1944

The functions of the Sugarcane Committee as stated in the final Resolution of the Government of India, dated 6th June 1944, are as follows:—

"The functions of the Indian Central Suarcane Committee will be to undertake the improvement and development of the growing, marketing and manufacture of Sugarcane and its products in India and of all matters incidental thereto. This includes items such as agricultural, technological and economic research on sugarcane, *gur* and sugar and their bye-products, the improvemet of crop forecasting and statistics, the production, distribution and testing of improved varieties, the adoption of improved cultural practice, enquiries and recommenda-

tions relating to banking and transport facilities and transport routes, the maintenance of an Institute of Sugar Technology and other similar matters. The control over the Institute of Sugar Technology will vest in the Committee along the lines indicated in the resolution. The Committee will also advise the Central and Provincial Governments concerned on any points which may be referred to them, provided the subject matter of the reference falls within the prescribed functions of the Committee."

In order to provide a fair representation to manufacturers, growers, traders and consumers, the body was constituted of nearly 45 members. Of the total number of members, 16 were given to officials of the Central and Provincial and State Governments who were to be represented by their officers. Of the rest of seats, 10 were allotted to Sugar mills, 4 to *Gur* and *Khandsari* industry, 8 to non-official representatives of agricultural interests, 3 to the Sugar Trade, 1 to Sugar Technologists and 3 to consumers' representatives. (See *Sugar Industry at a Glance.*)

It was also proposed that the Committee would undertake the maintenance of the Imperial Institute of Sugar Technology both as a teaching and research institution and be responsible for the improvement in sugar standards. Returns under the Sugar Production Rules, the maintenance of sugar trade information services and any special work that may be required by the Central or by any Provincial Government would be directly under the control of the Director of the Imperial Institute of Sugar Technology who would be appointed by the Government of India and continue to be a Government servant.

Finances of the Central Sugarcane Committee

The Government of India will finance the Committee by placing at its disposal the entire proceeds of the Sugar Excise Fund; the amount so credited shall continue to be one anna per cwt. of white sugar produced in British India out of the excise duty levied on it. The question of increasing the amount will be considered after the war. If the amount placed in the Fund in any year falls short of the needs of the Committee, the Government of India will automatically grant a loan free of interest to cover the deficit and enable the Committee to incur expenditure upto a limit of Rs. 11.75 lakhs in the year subject to the condition that the first charge on any surplus occurring thereafter will be the repayment of this loan. The Committee will meet all the present liabilities of the Fund and take over all its assets.

Functions of the Indian Central Sugarcane Committee

The formation of the Central Sugarcane Committee with the Central Sugar Advisory Board was a step in the right direction. During recent times, we have found a large number of such societies being formed to carry on research and develop the market for various commodities like rice, oilseeds, tobacco, tea, coffee, etc. The Government of India, with a view to help the activities of the society, placed at the

disposal of this body a sum of Rs. 125 lakhs in addition to the amount collected from excise duty. To utilise this fund, various agricultural and technological research schemes were considered by the Committee at its fourth meeting held at New Delhi on the 8th of February 1946 under the Chairmanship of Sir H. R. Stewart, Vice-Chairman of the Imperial (now called Indian) Council of Agricultural Research and President of the Committee. It is understood that the development work would comprise the establishment of seed nurseries and the provision of (*a*) manures of the right type, (*b*) qualified technical personnel to carry the results of the research to sugarcane growers, (*c*) an efficient watch and ward service for the protection of crop against pests and diseases and (*d*) a soil extension service to advise sugarcane growers.

A resume of the working of this committee in 1945-46 is given in part II of the *Annual.*

Estimated Production of Sugar in the Season 1945-46

The working of the mills and production of sugar during the current season of 1945-46 has already been referred to above. The second memorandum on Production of sugar by mills was published in the Indian Trade Journal on June 20th 1946. According to the estimates of the Director of the Imperial Institute of Sugar Technology, the total output by mills would be round about 966,000 tons.

A comparative study of the actual output during 1944-45 and the estimates for the current season of 1945-46 are given below :—

Province	Cane crushed 1944-45	Sugar made 1944-45	Cane crushed 1945-46	Sugar made 1945-46
	Actual results of the season		Estimates for the Season	
	Tons	Tons	Tons	Tons
1 United Province ...	51,85,900	5,28,900	52,06,600	5,25,600
2 Bihar ...	15,88,600	1,69,900	19,96,700	1,78,600
3 Punjab, Sind & N. W. F. P. ...	1,25,100	12,300	1,18,400	10,600
4 Madras ...	5,10,400	46,500	5,62,800	51,400
5 Bombay ...	6,94,200	74,900	6,73,600	73,600
6 Bengal ...	1,23,100	12,000	2,80,500	26,300
7 Orissa ...	24,400	2,600	20,900	2,100
8 Indian States ...	10,91,600	1,06,400	10,07,800	97,800
Total	93,43,300	9,53,500	95,67,300	9,66,000

Area Under Sugarcane in 1945–46.

The total area under sugarcane in 1945–46, according to the final general memorandum on the sugarcane crop of 1945–46 published in the Indian Trade Journal of the 15th August, 1946, is 38,47,000 acres as against 41,54,000 acres in 1944–45. The total estimated yield of raw sugar (*gur*) stands at 53,87,000 tons as against 54,81,000 tons in 1944–45, or a decrease of 2%.

The table No. 9 on page V of the "Sugar Industry at a Glance", which was based on the second sugarcane forecast is, therefore, to be amended as shown in the above paragraph in respect of the acreage under cane in 1945–46 and 1944–45.

Final Sugarcane Crop Forecast for 1945–46 * *for Sugar*

Provinces & States	1945–46 (Thousands of	1944–45 Acres)
U. P. including Rampur State	1867	2201
Punjab	593	602
Bihar	381	362
Bengal	323	310
Bombay including Indian States	181	166
Madras	156	156
N. W. F. P.	96	96
Assam	50	49
Orissa	35	34
C. P. & Berar	39	32
Sind (including Khairpur State)	6	5
Delhi	2	3
Mysore	44	44
Hyderabad	59	60
Bhopal	8	7
Baroda	5	5
Jaora (Central India)	2	2
Total ...	3847	4134

In addition to the area for which particulars are given above, the crop is grown on a small scale in certain other tracts in India, the average area of which for the last five years has been some 1,57,000 areas with an estimated yield of 2,20,000 tons.

The average percentage of sugarcane area in the various tracts to the total area under sugarcane in India is based on the figures for the five years ending 1943–44 is given below :—

U.P. 51 per cent; the Punjab 11·9; Bihar 10·6; Bengal 7·9 Bombay 3·9 Madras 3·4; North W.F.P. 2; Assam 1·1; Orissa 0·8; Central Provinces and Berar 0·7 Sind 0·2 Delhi 0·1 Mysore 1·1 Hyderabad 1·1 Bhopal 0·2.

In the table below is given the area under sugarcane, under improved varieties, and production of cane per acre, gross production of *gur*, and calculated production of cane crop from 1930–31 to 1945–46.

* *Indian Trade Journal* dated 15th August 1946.

Year.	Total acreage (Thousand of acres.)	Acreage under improved varieties (Thousands of acres)	Average cane production per acre. (Tons.)	Gross production expressed as *gur*. (Thousands of tons.)
1930-31 ...	2,905	817	12·3	3,359
1931-32 ...	3,076	1,170	14·1	4,116
1932-33 ...	3,424	1,845	14·9	4,859
1933-34 ...	3,422	2,295	15·3	5,055
1934-35 ...	3,602	2,433	15·1	5,292
1935-36 ...	4,154	3,056	15·3	6,102
1936-37 ...	4,582	3,452	15·6	6,932
1937-38 ...	3,869	2,968	15·5	5,579
1938-39 ...	3,130	2,673	15·0	3,572
1939-40 ...	3,640	2,893	15·0	4,748
1940-41 ...	4,598	3,480	15·0	4,794
1941-42 ...	3,515	2,773	15·0	4,371
1942-43 ...	3,590	......	15·0	5,076
1943-44 ...	4,234	......	15·0	5,848
1944-45 ...	4,154	......	15·0	5,481
1945-46 ...	3,847 (Est.)	......	...	5,387

Gur Control Order, 1943, *and Its Working in* 1943–44, 1944–45 *and* 1945–46

In pursuance of the policy of maximisation of sugar output and the consequent need to ensure adequate supplies of sugarcane at the minimum price fixed by the Provincial Governments of U.P. and Bihar, it was found necessary to discourage the output of *gur* and regulate its production and movement. With this object in view the *Gur* Control Order was passed to regulate the prices and production of *gur*. The decision to regulate prices and distribution of *gur* was arrived at by the Food Conference held in New Delhi early in 1943 and the Order was accordingly promulgated on 24th July 1943, in the background of the conditions described above.

The Order is a very comprehensive one and later on amendments have been made from time to time to correct the defects noticed in the working of the Order. Under it a *Gur* Controller for India who is also the Sugar Controller has been appointed with the following powers :—

(1) To fix maximum prices of *gur* in any specified area;

(2) To prohibit or restrict cane movement from any particular area;

(3) To direct cane growers in that area to deliver cane (*a*) to a particular sugar factory, (*b*) in such quantity, (*c*) at such prices, and (*d*) at such times as may be specified by the Controller.

(4) To prohibit or restrict manufacture of quantities or qualities of *gur*.

(5) To allot *gur* quotas to provinces or areas and direct producers and dealers to deliver the same, and

(6) To prohibit *gur* movement and transport.

From the comprehensive nature of the powers given by the Order it will be clear that the authorities are anxious to afford all facilities to mills for increasing the output of sugar. It will also be clear that the authorities are equally anxious to

control prices and arrange movement in an orderly manner and relieve the strain on transport. A larger production of *gur* would necessarily mean delay in the allotment of wagons to factories as *gur* being a perishable commodity will have to be accorded priority. Another important consideration is that there should not be any great diversion of demand for sugar from consumers of *gur*. The consumption of *gur* in India in rural areas is very great amounting to nealry three times that of sugar. Unnecessary restriction either on the movement or production of *gur* will cause hardships for the poor and at the same time create more demand for sugar.

The prohibition of the manufacture of *gur* within a certain area from the factories and the direction of supplies of cane to particular factories are intended to help mills in getting cane supplies and are therefore in favour of the mills. A ban has also been imposed on the movement of *gur* either by rail, land or river except under a permit obtained from the *gur* Controller to that effect, and Provincial Governments have also put restrictions from time to time on the movement of *gur*, as we have shown in previous pages.

The *Gur* Control Order mainly affected the surplus producing areas, namely, the U. P., Bihar and Madras. All other areas were deficit areas which would have to import *gur* to meet their internal requirements. Even though the Punjab is an important producer of *gur*, it imports nearly 5 lakhs tons of *gur* from the N.-W. F. P. and the U.P.

An announcement issued by the Government of India in October 1943 made it clear that exports on private account were banned and that Government had taken the monopoly of inter-provincial trade. The scheme of the Government while banning exports on private account contemplated allotments of periodical quotas from the surplus areas to deficit areas. On November 12, 1943, a press note was issued by the Government of India explaining that no private exports of *gur* were allowed from one province to another. *Gur* was to be exported only by the Governments of the surplus areas to the Governments of the deficit areas or to their accredited representatives in accordance with the intruction of the *Gur* Controller for India, who would allot periodical quotas for the export of specific quantities from each surplus area to each deficit area.

While the aim of the *Gur* Control Order was certainly laudable as it was the first and important measure designed to help the producers in preference to *gur* manufacturers and ryots, there was general apprehension that the strict enforcement of the Order would affect adversely sugarcane crop and acreage. At first Government was unable to maintain the price of *gur* at Rs. 8 per maund, the controlled ceiling price.

The licensing of agents and dealers, the control of movements, the grant of permits, the allotments of quotas and the monopoly of inter-provincial trade naturally created difficulties. The new methods gave rise to a good deal of confusion in working. Transport which was the main bottleneck presented difficulties. With the ban on free movements of *gur* and the lack of adequate transport facilities, there was a glut in the markets in the U.P. and prices came down to Rs. 6-8-0. Large stocks had accumulated at the markets for lack of transport.

The indiscriminate control of *gur* in areas where factories were not situated and the decline in prices to below the rate fixed by the Government was the subject of considerable criticism. It was widely feared that the object of the authorities in maintaining a price ratio between *gur* and sugar had resulted in great confusion and that the total output of *gur* and sugar would be affected.

Some other defects in the working of the *Gur* Control Order in its early stages were also noticeable. While there was a scarcity of *gur* in other parts of the country, large stocks of *gur* were accumulating in U.P. and Bihar. In the quota arrangements also there were loopholes. The Punjab used to get its requirements from N.-W.F.P. and U.P. For some reasons N.-W.F.P. was not able to control its price of *gur* and actually the price was Rs. 14 per maund. The Punjab Government naturally wanted to buy its requirements from the U. P. at a lower price. The N.-W.F.P. eventually permitted private exporters to send out *gur* at a price much higher than the controlled rate to Sind which was also a deficit province. Another important point was the prevention of "black markets" and profiteering by importing Governments. *Gur* acquired by the importing Governments was at a price far below the market value in the importing area and the question of proper disposal and elimination of "black markets" meant some difficulty. Smuggling of *gur* from areas on the borderline presented a great source of profit to the profiteer.

Comments on the Gur Control Order

The *Gur* Control Order is like a double-edged weapon which must be used very carefully. An over-zealous control exercised over *gur* might create troubles for the factories at a later date. Too many restrictions on cane and *gur* might tempt the peasants to give up cane cultivation altogether and take to other commodities which are more remunerative. In the drive for maximisation of sugar production, *gur* production should not unduly suffer and be materially affected except perhaps to the extent of the increased production of sugar. By the application of the Order, one may certainly wish for an increase in production of sugar by enabling mills to have sugarcane in adequate quantities but by the indiscriminate application of the *Gur* Control Order, there should not be an increase in sugar output at the cost of *gur* production. The consumption of *gur* in India is very large and almost three times that of sugar. *Gur* is mostly consumed in the place of sugar in rural areas. So the ratio of 3 : 1 between *gur* and sugar may well have to be maintained even under the *Gur* Control regime in the interests of the large number of *gur* consumers in this country. Cane in the gate areas of the factories alone may be discouraged from being converted into *gur* for the benefit of mills. In outside areas, where no mills are situated, *gur* production should be allowed. Otherwise, there will be a diversion of sugar consumption in preference to *gur* consumption in rural areas also. This will create an unduly large demand for sugar and result in complications for the sugar Industry. Newer and larger demands for sugar now will only make the operation of Sugar Control Order ineffective and there will be

"black markets" in sugar everywhere. Therefore an unduly strict and rigorous enforcement of the *Gur* Control Order, without gauging its repercussions on the demand for sugar, will only end in chaos in the sugar industry itself and defeat the very object for which the *Gur* Control Order came into being.

In controlling *gur* production and prices there are certain factors which should be faced squarely in the working of the Order. The very nature of the commodity, the large number of people who manufacture *gur* in scattered areas and the enormous quantities produced every year do not make *gur* easily amenable to control operations. For instance, there cannot be the same leisurely declaration of delivery quotas as in the case of sugar, for *gur* quickly deteriorates with the onset of the rains. The same condition applies to transport and marketing which should be finished quickly and the stocks of each year must be disposed of that year.

As Mr. Lalchand Hirachand, the outgoing Chairman of the Indian Sugar Mills Association said in his speech in 1945 the *Gur* Control Order is like a 'V' weapon in the hands of the Sugar Controller. It is a double-edged knife which cuts both ways if used improperly. Every caution should have to be taken in putting it in to force lest it should turn like a boomerang. "Like all 'V' weapons, its use is also destructive in nature." *An improper and indiscriminate application* of the *Gur* Control Order will certainly result in harmful effects both for *gur* production as well as sugar production in the country.

Working of the Gur Control Order During 1944–45

At the outset of 1944 the prevalence of "black markets" in provinces and places outside the U.P. and Bihar, the lack of transport arrangements for *gur* export and the inter-district ban on movement of *gur* created a serious crisis in the two *gur* markets of Meerut and Muzaffarnagar. The ceiling prices for *gur* were fixed by the *Gur* Controller at Rs. 8 per maund for 1943–44 season on the basis of a cane price of As. 10 per maund of cane. *But the over-stocked position in the gur* markets depressed prices in the U.P. exporting centres and the market prices hardly touched the ceiling price any time in the U.P. At the same time in places outside U. P. the prices of *gur* were higher than the ceiling prices fixed by the *Gur* Controller. For instance, in Bengal, in certain places affected by famine there was a good demand for *gur* as food and it was consumed at as high a price as Rs. *30 per maund. In deficit provinces like Sind,* C. P. and Bombay the market prices of *gur* were much higher than the ceiling price of Rs. 8 ruling in the U.P. This disparity in prices encouraged smuggling of *gur*. Further the importing merchants in other provinces were making larger profits while the *gur* producer in the U. P. and Bihar was obliged to sell his *gur* at a controlled price of Rs. 8. This state of affairs wherein the producer was not making any margin of profit while the importing merchants were reaping a higher reward dissatisfied the *gur* interests in the U.P. who felt sore at the injustice done to them by control measures. The *Gur* Controller was unable to prevent the existence of black markets in

deficit areas are due to the reason that there was almost no control over distribution or prices of *gur* in other provinces until a very late date when it was introduced.

Prices of *gur* in the U.P. therefore suffered a slump in the summer of 1944. The meagre transport facilities and the irregular and leisurely working of the allotment of quotas accelerated the pace of the accumulation of surplus stocks of *gur* in the markets and soon there was a glut in the *gur* markets. The inter-district movement ban proved at first an impediment for transport of *gur* from the producing centres to the selling markets, thus blocking the new season's *gur* in the U.P. itself. There was a good deal of dissatisfaction over the depatches of *gur* from the producing areas. The working of the *Gur* Control Order in the early stages gave rise to a crop of insoluble problems. As a result, prices of *gur* came as low as Rs. 6 per maund. In the months of June and July 1944, due to the over-stocked position, in the Muzaffarnagar market the price of *gur* sank as low as Rs. 4-8 per maund, the lowest ever touched after the introduction of the Control Order. This created a great stir and the *Gur* Controller was obliged to turn his attention to (*a*) provide more wagons for transport of *gur* before the next cane crushing season commenced, (*b*) and evolve a scheme of quotas and control of prices of *gur* in the importing deficit markets and provinces.

The resolution adopted by the Consumers' Council of the All-India Food Conference held at Delhi in July 1944 clearly expressed the anxiety over the *gur* position and the disturbing effects produced by the working of the *Gur* Control Order in the first half of 1944. The resolution reads as below :—

"This Committee views with concern that in *gur*-producing areas good and valuable *gur* is destroyed by rains and a large area of cane crop is left unharvested and insanitary conditions are produced by the wrong policy adopted by the Government of India. In the opinion of the Committee, *gur* is a valuable and necessary food, but being perishable, *gur* should be allowed to be transported to other areas before the monsoon. In future no restrictions against its transport by bullock carts, lorries, etc., should be placed and the movement of *gur* should be freely allowed. The present glut should be removed as soon as possible to avoid epidemics and further loss to this valuable and useful food."

Despite the adverse criticisms and the temporary uneasy position created in the *gur* markets by the operation of the *Gur* Control Order, the authorities were confident that they would tide over the critical situation and with the provision of transport and fixation of quotas for provinces, the glut would be removed and prices would adjust themselves as a result. The *Gur* Controller therefore relaxed no provision of the Order as he felt sure of the necessity and the ultimate success of the control measures in averting any price racket and black markets in sugar and *gur*. To cope with the situation, transport facilities were provided immediately. In the months of June, July, August and September 1944, vigorous efforts were made to move the vast quantities of *gur* which were lying in the

markets. Out of a total export quota of 380,000 tons from the U.P., nearly 250,000 tons were exported from the province by rail, road and river. The strenuous efforts made by the *Gur* Controller and the U.P. Government in arranging quick transport for the *gur* that had accumulated in 'mandis' reduced the stocks to a large extent and prices began to react slowly to the new conditions in the *gur* market.

Although enough transport was provided by the Government before the commencement of the 1944–45 crushing season, due to the acute food position and the difficulties involved in the over-production of *gur*, the U.P. Government felt compelled to restrict the output of *gur* in the ensuing season. With that view, on the 9th October 1944, the Government issued a press note warning cultivators against the production of *gur*. The announcement made an appeal to the cultivators to restrict cane sowing and warned them that if they planted an excessive area under cane outside factory zones and a glut in the *gur* market occurred in 1946, Government would not help them in marketing the same. It expressed the wish that the uneconomic price of *gur* which prevailed since the opening of the year would lead sugarcane growers outside the factory zones to grow more food crops. Thus a definite measure was taken to discourage over-production of *gur* in the season 1944–45.

To prevent merchants in the importing deficit provinces from misusing their permits, a new scheme of control over the distribution of *gur* in all provinces was also evolved by the *Gur* Controller. The Provincial Governments were asked to fix maximum prices for imported *gur* and arrange the proper distribution of it in the provinces. Permits for exports were strictly scrutinised and stringent restrictions were indroduced to check "black marketing" in permits and prevent constant changing of the names of importing places by merchants.

By a notification dated 29th November 1944, the *Gur* Controller for India, in consulation with the U.P. Government, fixed a higher export quota of 3,62,000 tons for the province. This quota was to be distributed according to a scheme among the deficit provinces. The export quota of the U.P. for the previous season was 2,99,000 tons out of a total export allocation of 3,80,000 tons made from all the surplus provinces. The increased allocation for 1944–45 was based on the experience gained by the working of the *Gur* Control Order in the first year. The deficit provinces were asked to give their requirments at the beginning of the season and on this basis export allocations were made to the surplus provinces. Thus the scope for the existence of black markets in deficit provinces was restricted by taking into account the full quotas needed by the areas and by asking the Provincial Governments in each area to undertake the distribution of imported *gur* at controlled prices. Thus a more scientific and orderly scheme of Distribution was being evolved for the 1944–45 season.

Operation of the Gur Control Order During 1945-46

Early in the 1945-46 season the Governments of U. P. and Bihar thought of enforcing what was familiarly known as the "*Gur* Ban Order," laying down that no sugarcane in the reserved areas of a factory could be converted into *gur* or used for the manufacture of *khandsari* sugar. The order was promulgated under the Defence of India Rules. While the intention of the Government was laudable in that they wanted to ensure availability of cane for the factories, they hardly succeeded because the order clearly went against the interests of the cultivators and was, therefore, greatly disfavoured by them. Although some factories repeatedly brought to the notice of the district authorities and officers of the Cane Development Department the breaches of the *Gur* Ban Order, there was no inclination on the part of the district authorities to prosecute the offenders, and the officers of the Cane Development Department had no powers to take any action. The result was that suitable quantities of cane were not available for the factories and there was great fall in the production of sugar.

In May 1946, the U. P. Government also increased the price of standard *gur* from Rs. 10-8-0 per maund in April 1946 to Rs. 11-0-0 for May, Rs. 11-4-0 for June, and Rs. 11-8-0 for July 1946. While the *gur* prices were thus increased, there was no change in the prices of sugar.

Effect of Non-enforcement of Control on Khandsari Sugar—prices in the U. P. in 1945-46.

We have already referred in previous pages to the large quantity of sugarcane diverted for the manufacture of *khandsari* sugar, the price of which was fixed at Rs. 18-8-0, that is, Rs. 2-4-0 higher than the rate for standard sugar D.24 quality. Apart from this, as a result of the fact that while the controlled rate of *khandsari* sugar was only about Rs. 18-8-0 per maund, it used to sell freely at higher prices ranging up to Rs. 35 and Rs. 40 per maund, a large quantity of cane was diverted for the manufacture of *khandsari* which could offer more attractive prices for the cane. While this certainly helped in the augmentation of the *khandsari* sugar, the fact should not be overlooked that the production of sugar by the *khandsari* method is very uneconomical, the recovery being only about 5½% as compared with 10% in the factories. This is, therefore, a national loss and the Governments of the U. P. and Bihar should give their most careful attention to this aspect before giving any concession to *khandsari* manufacturers, on the ground or on the analogy of that being a small-scale method of manufacture of sugar, like what the handlooms are to the cotton mills. A detailed investigation will show that there is not much force in this analogy inasmuch as the handlooms are not an uneconomical proposition like what the *khandsari* definitely is, compared with the factory.

Later in the year (July 1946) the Government of India withdrew the control of prices of *khandsari* sugar and, therefore, the prices of

khandsari sugar soared very high in the U. P. as a result of the de-control. If no immediate action is taken to control the prices of *khandsari* sugar and to ensure that *khandsari* sugar is regulated and sold at the actual controlled rates, there is no doubt that larger and larger quantities of cane would be diverted for the manufacture of *khandsari* sugar in the forthcoming 1946–47 season, and this will reduce supplies of sugarcane for the factories. In view of the loss of sucrose from this comparatively inefficient method of production of the *khandsari*, we suggest that the Governments of the U. P. and Bihar should give their most careful consideration to this aspect before taking any steps for decontrolling either the prices or the movement of *khandsari* sugar in these provinces.

Allocation of Gur in 1945–46

It was reported that the *Gur* Controller for India has made allotments of a *gur* surplus of 4,25,000 tons during the season 1945–46. It was further understood that the U. P. Government had agreed to supply nearly 3 lakhs tons of *gur* to other provinces and states, viz: Bengal, C. P., Rajputana, the Punjab (including States) and Sind. The quotas fixed for them were: 70,000, 52,000, 60,000, 1,12,000 and 25,000 tons respectively as against the last season's allocations of 60,000; 50,000; 65,000; 1,15,000; and 2,25,000 tons respectively. Thus the export quota has been increased by 6,500 tons over the previous year.

With the consent of the Central Government, the Bihar Government imposed a ban on the export of *gur* from that province. The Bihar Government, due to decrease in the acreage of sugarcane in the province, did not ask for the allocation of any quota for the export of *gur*. The press note issued on 15th November 1944 stated that there had been a decrease in the acreage under sugarcane by 20 to 25 per cent approximately and consequently if *gur* was allowed to be made for export, sugar factories would not be able to get their normal supply of cane. Therefore, export of gur was prohibited from Bihar and no quota for the time being was fixed for export. The inter-district ban on movement of *gur* was re-introduced on 7th December 1944. In May 1946 the Bihar Government banned the use of *gur* in the manufacture of liquor also.

Measures of control over *gur* were inaugurated in other provinces also. The Government of Bombay fixed the wholesale ceiling prices of *gur* in the districts of Nasik, Ahmednagar, Poona, Sholapur Satara and Belgaum at Rs. 14 per maund. Distribution of gur was also taken under control with effect from January, 10, 1945.

Withdrawal of Control of Gur in Bombay in 1946

A Press note issued by the Government of Bombay on 6th September 1946 stated that the Government of Bombay having carefully reviewed the present *gur* situation had decided to withdraw the control over distribution and prices of *gur* in the province of Bombay with immediate effect. The press note further stated:

"With a view, however, to conserving the stocks of *gur* within the province, the existing ban on the export of *gur* by road, rail, river or sea from any place within the province to any place in India or outside it, continued to remain in force. In pursuance of this policy, orders issued by the Government of Bombay (1) banning the movement of *gur* from one district to another within the province as well as from Bombay City and the Bombay Suburban District to other parts of the Province, (2) freezing the stocks of *gur* and regulating their disposal in Bombay City and the Bombay Suburban District, (3) calling for declarations of stocks of *gur* in excess of 5 maunds (of 82-2/7 lb. each) and fixing the ceiling prices of *gur* in the *gur* producing districts of Nasik, Ahmednagar, Poona, Sholapur, Satara and Belgaum, and (4) fixing the wholesale and retail prices of *gur* in Bombay City and the Bombay Suburban District will be cancelled from September 6, 1946.

The notification requiring the declaration of stocks of *gur* in excess of 5 maunds (of 82-2/7 lb. each) in Bombay City and the Bombay Suburban District remains unaffected."

In Bengal also *gur* came under control. The Government fixed the controlled rate for *gur* at Khulna at Rs. 12-2-0 per maund.

On the 9th October 1945, the *gur* and Sugar Products Control Order of Bengal was published in the Calcutta *Gazette*. Under this order, the Government declared any area to be a reserved zone for a factory. The Government also fixed the period for which *gur* could be manufactured in that area. The order further directed that no person could move any *gur* or sugarcane form the area, without special permission from Government. The movement whether by rail, road or river was prohibited.

Gur Control in U.P. in 1945

On 24th January 1945 the U. P. Government issued an Order prohibiting the movement of *gur* by road or river without a permit. As the crushing season of 1944-45 did not show signs of maximum production of sugar due to short supply of cane to the factories, the U. P. Government resorted to the method of prohibition of the manufacture of *gur* in certain areas with a view to help the factories located in those areas. The problem of securing better cane supplies to sugar factories cropped up with the unsatisfactory results of certain mills as the crushing season advanced and mills began working at full speed. The U. P. Government, agitated over the situation, issued the most sweeping measure of control by prohibiting the manufacture of *gur* in reserved gate areas of about 20 factories and the export of sugarcane therefrom. By a notification dated 2nd March 1945, the U. P. Government banned the movement of sugarcane by rail, road or river from any place situated within the reserved areas of the following factories in the provinces;

1. Sakhoti-Tanda, 2. Mohiddinpur, 3. Begamabad, 4. Khatauli, 5. Mansurpur, 6. Saharanpur, 7. Deoband, 8. Rohana Kalan, 9. Pilibhit, 10 Manpur-Nagaria, 11. Dhampur, 12. Bareilly, 13. Maholi, 14. Hardoi, 15. Khalilabad, 16. Barhni, 17. Bhatni, 18. Pharenda, 19. Shahganj, 20. Nawabganj.

By a subsequent notification dated 14th March 1945, three more areas were added to this list viz. Shamli, Golagorkarannath and Ramkola. It was hoped that this prohibition would help the mills in securing better supplies of cane for the remainder of the crushing season but as the Order came too late when the mills were almost closing it did not materially enhance the output of sugar. Simultaneously the U.P. Government, with a view to help mills and discourage the output of *gur* even in the last few days left in the crushing season, issued instructions to Regional Food Controllers to requisition *gur* in case *gur* prices persisted at a level over the ceiling price of Rs. 8-12-0 per maund. Such a move would effectively discourage *gur* production and help the drive for food production in the coming season. The immediate effect of this order was that banks refused to advance loans on *gur* and *gur* prices came down to the ceiling fixed. A semi-compulsory and extra legal measure of asking *gur* manufacturers to bring in along with *gur* 5 per cent wheat for sale in Muzaffarnagar was enforced by the local authorities for some time. By this, *gur* was not only used as one of the means of tapping the wheat resources of the country-side but the manufacturer of *gur* was penalised by extra demands to discourage him from turning cane into *gur*. But this invidious method resorted to for a temporary period, was given up soon.

Since March 1945 there was a definite tendency for an upward swing in *gur* prices in the *gur* markets in the U.P. The short crush, in the Western Group, the definite shortage of cane sugar consequent on low crush and the Government's decision to raise water charges on cane cultivation by 50 per cent—all these factors show a further hardening of *gur* prices in the U. P. this season. With smaller arrivals of *gur*, the demand by the import stations became very acute by the end of March 1945. There was no overstocked position in the *gur* markets as it was in the last season. Transport facilities and the quota system seemed to have definitely improved the *gur* position. The production of *gur* in 1943-44, 1944-45 and 1945-46 was 39·9 lakhs 42·5 lakhs and 36·5 lakhs tons respectively. For total production of *gur* in India, see Table No. 27, in "Sugar Industry at a glance."

Production of Sugar by Khandsari and from Gur.

Refined sugar is manufactured by three different processes in India, namely (1) direct from cane from modern vacuum pan factories, (2) from cane by indigenous open pan factories, i.e. *khandsari* (through the intermediate process of Rab), and (3) from *gur* refined in modern refineries.

A detailed reference has already been made to the production of sugar by the first method, i.e. direct from cane in modern vacuum pan factories. In regard to sugar production by *khandsari*, no reliable and definite statistics are available but an estimate can roughly be made on reports. The operation of *khandsaris* is particularly noticeable in the United Provinces where 60 per cent of the total *khandsari* sugar production in India is being produced. It is estimated by the authors of "Report on the marketing of Sugar in India and Burma" that *khand* forms nearly 13 per cent of the total white sugar made in India. About 85 per cent of the quantity of *khand* is directly prepared from cane or juice and the rest by *re-melting gur*. Like *gur* sugar, its production also depends upon the relative prices of *gur* and sugar in any year.

The quantity of *khandsari* sugar manufactured from cane has varied in recent years, from 1,00,000 tons in 1938–39 to 1,50,400 tons in 1941–42, 1,17,000 tons in 1942–43 and 80,000 tons in 1943–44, and in 1944–45. The production for 1945–46 is estimated at about 60,000 tons. It may, however, be actually more, in view of the high prices realised for *khandsari* sugar, out of all proportion to the controlled price of Rs. 18–8–0 per maund, due to the general shortage of sugar in the country.

In this connection it is of interest to observe that although the estimated production of *khandsari* sugar is so large, the figures of the amount of excise duty collected during the last nine years are so low that they point to a very small production. The reason for the collection of so small an excise duty is found in the fact that many *khandsaris* are small units which can easily escape paying the excise duty. The total amount of excise duty collected from the production of *khandsari* sugar in 1934–35 and subsequent years is as follows:—

Year.	Amount. Rs.	Year	Amount. Rs.	Year.	Amount. Rs.
1934-35	... 77,000	1938-39	... 59,000	1942-43	... 1,57,000
1935-36	... 60,000	1939-40	... 1,46,000	1943-44	... 5,09,000
1936-37	... 47,000	1940-41	... 2,86,000	1944-45	... 3,65,000
1937-38	... 51,000	1941-42	... 4,43,000	1945-46	... 1,74,000 (from April to Feb).

The present rate of excise duty on *khandsari* sugar is 8 annas per cwt. only.

Definition of Khandsari Sugar

Under the Sugar Excise Duty Act, 1934, excise duty is levied on *khandsari* sugar (i.e. sugar in the manufacture of which neither vacuum pan nor vacuum evaporator is employed) under Section 3 (1) of the Act. For the purpose of the Act 'sugar' means any form of sugar containing more than ninety per cent of sucrose, and in order that sugar may be taxable, it must be produced in a factory

which means any premises in any part of which any manufacturing process connected with the production of sugar is being carried on or is ordinarily carried on, with the aid of power. The sugar produced by the purely agricultural section of the Open Pan Sugar Industry where work is done without the aid of power is not liable to excise duty. Similarly, products like *Gur* and *Rab* which do not contain 90 per cent of sucrose are not liable to excise duty. It is well-known that several smallsized vacuum pan concerns manufacturing *khandsari* sugar had in order to avoid the excise duty, so adjusted their business that they would not come within the provision of the definition of a 'factory'. With effect from 28th February, 1939, however, under the amended definition of 'factory' they were also liable to excise duty at the rate of Rs. 0-8-0 per cwt.

Khandsari production is still being continued because the *khandsaris* enjoy definite advantages in spite of the uneconomic method of production of sugar. The *khandsaris* do not pay (*a*) cess on cane which the factories will have to pay, (*b*) incur no expenses by way of commission to co-operative societies, (*c*) spend nothing in railway freight or other transport costs for supplies of sugarcane, and (*d*) possibly escape on occasions even the payment of excise duty of Rs. 0-8-0 per cwt. All these factors are responsible for the continued existence of *khandsari* production of sugar. The total cost of manufacture of *khandsari* sugar may be taken at Re. 1 to Rs. 1-4-0 per maund. The Report on the Marketing of sugar estimates the approximate cost of a typical *khandsari* concern in Rohilkhand (U. P.) at Rs. 1-1-8 per maund for *khand* recovered and rab treated at Rs. 0-3-7 per maund.

Khandsari industry appears to be at an advantage in the interior areas, far removed from factories where cane is available cheaply and which cannot be disposed of in any other profitable way. The *khandsari* sugar factories can be helped by the Government by improvement of the equipment and introduction of improved types of crushers, juice-boiling bells, etc.; by improvement of the methods of manufacture in order to improve the quality of the finished product; and by better facilities for getting the necessary equipment on hire and by better marketing facilities. The Imperial Council of Agricultural Research sanctioned a grant of Rs. 1,67,380 for the establishment of a Sugar Research Testing Station for the indigenous system of *gur* and sugar manufacture for a period of 5 years ending in November 1941. A small grant was also made to the Government of Bihar for investgation into the possibilities of manufacturing *khandsari* sugar by single pan method. But so far no material results of these schemes have been placed before the public. The newly constituted Central Sugarcane Committee may be expected to take some interest and explore the avenues of adopting better methods and getting improved qualities of sugar by the *khandsaris*. In 1945-46 *khandsari* production must have received an impetus as it was possible to sell *khandsari* sugar at rates far higher than the controlled rate of Rs. 18-8-0 per maund.

Sugar Refined from Gur

The third method of producing sugar is by refining from *gur*. The production of sugar refined from *gur* in modern refineries is naturally dependent on the relative cheapness of *gur* and the disparity in prices between *gur* and sugar. In the years when there will be keen competition from sugar mills due to plentiful supplies of cane and increased output, production of refined sugar will be rather small. When there is a wide disparity between the prices of sugar and of *gur* so as to enable sugar production more profitable, the refineries will produce more sugar and enjoy prosperous conditions. Thus, production of sugar by refineries varies very much from year to year and is governed by unpredictable factors.

Production of sugar by refining *gur*, in India, in 1944 was 7,890 tons as aginst 6,370 and 13,400 in 1943 and 1942 respectively. Only four factories produced sugar by refining *gur* in 1944 as against five in the previous year. The total production, however, showed some increase, being 7,890 tons against 6,370 tons in 1943. The average recovery of sugar per cent of *gur* was 59.4 against 64.5 in the previous year. Of the four factories that worked during the year, two were from Madras, one from the U.P. and one from the Indian States. *Gur* refining is now a declining industry. But for a slight increase, in 1944, as compared with 1943, the production of sugar refined from *gur* has been rapidly falling since 1941.

In the United Provinces the quantity of *gur* melted was 890 tons in 1944 as against 720 tons in 1943. Sugar manufactured was 440 tons against 450 tons in 1943, and molasses obtained was 380 tons as against 240 tons in 1943. It appears from the figures given above that in the year 1944 there was a slight decrease in the amount of sugar manufactured as compared with the figure for 1943. As regards the output of molasses, there was a substantial increase in 1944 as compared with the figures for 1943. Recovery of sugar for 100 tons of *gur* melted was 49.43 as against 62.50 in 1943. There is thus a decrease by 13.7 per cent during the year 1944. Recovery of molasses per 100 tons was 42.93 tons in 1944 as compared with 1943 indicating thereby that there was an increase of 9.6 per cent.

In Madras *gur* melted was 8,050 tons in 1944 as compared with 9,140 tons in 1943. Sugar manufactured was 440 tons as against 450 tons in 1943 indicating a slight decrease; molasses obtained was 2,210 tons against 2,440 in 1943. The recovery percentages of sugar and molasses for 100 tons were 62.61 and 27.45 respectively as against 64.77 and 26.70 in 1943. Recovery of sugar decreased by 2.16 and recovery of molasses increased by a slight margin.

The total production of sugar and molasses by refineries in India for 1944 were as follows: Sugar manufactured was 7,980; *gur* melted was 13,440 tons; molasses obtained was 3,850 tons; recovery of sugar 59.38 and recovery of molasses 28.65. The comparative figures for the previous season of 1943 were sugar manufactured 6,370 tons, *gur* melted 9,860 tons molasses obtained 2,680 tons; recovery of sugar 64.60 percentage and of molasses 27.18.

It will now be interesting to study the following table to understand the extent of the contribution of refineries to sugar and molasses production in India during the last eight years :

Production of Sugar and Molasses in India by Gur Refineries

Particulars	1937	1938	1939	1940	1941	1942	1943	1944
Number of Gur refineries operating	9	10	10	10	14	11	5	4
Gur melted in tons (thousands)	32	26.7	23.3	50.8	87.3	21.7	9.8	13.4
Sugar manufactured in tons (thousands)	19.5	16.6	14.2	29.6	48.5	13.4	6.3	7.9
Molasses obtained in tons	10.1	8.8	6.4	15.8	32.0	7.6	2.6	3.8
Recovery % of sugar from Gur	60.9	62.1	60.9	58.8	55.6	61.8	64.6	59.4
Recovery % of molasses from Gur	31.5	32.9	27.4	31.1	36.7	35.0	27.1	28.6

Distribution of Sugar in India

Since the institution of control over the sugar industry, the distribution of sugar has been under the supervision and direction of the Sugar Controller for India. As already observed in the foregoing pages, a quota system of allotment from the various surplus to the deficit provinces with minimum pressure on transport was introduced by the Sugar Controller in 1942. The quantity of sugar allocated every year has been altered in relation to the production of the season.

The following statement gives the provisional quotas allocated by the Sugar Controller for the year 1945-46 from the all-India pool :—

Area	Tons	Area	Tons
Assam	16,530	Jammu & Kashmir	5,660
Baluchistan	4,090	Madras & States	98,090
Bengal & States	1,31,805	N. W. F. P.	15,660
Bombay & States	1,72,700	Orissa	7,400
C. I. States	22,190	Punjab & States	1,38,330
C. P. & States	32,800	Rajputana	35,330
Delhi	15,230	Sind & States	26,020
Hyderabad	18,000	Bihar	1,12,000
		U. P. & States	49,000
		Total	9,01,015*

*Includes 15,000 tons of *khandsari* sugar allotted to areas outside the U. P. The quota for 1946-47, may be almost the same.

Importance of Sugar Industry in National Economy

We have dealt with at length the various problems of the sugar industry during 1944-45 and the prospects for the current season of 1945-46. It now remains to see the wider picture and assess the importance of the sugar industry in the national economy of this country.

The figures of production given above will unmistakably demonstrate the importance and present magnitude of the sugar industry in India. In this connection is should be remembered that the Sugar Industry is at present the *second biggest* industry in India, the Cotton Textile Industry being the first and largest, and both these industries are owned, controlled and managed to a very large extent by the nationals of this country. The prosperity of nearly 20 million agriculturists is linked up with the welfare and development of the sugar industry in as much as the sugarcane growers in India are mostly small-holding peasants, with meagre incomes. Taking into consideration these facts and also that the development of the sugar industry has enabled India to keep within her borders a huge annual drain of about Rs. 16 crores paid to foreign countries before the establishment of the industry, it is easy to see the importance of the Sugar Industry in the national economy of the country. The need for its development and continued progress for the welfare of India cannot be over-emphasised. The rapid growth of the Sugar Industry in a comparatively short period of its present position of eminence, the possibility of production of sugar from the existing equipment of factories in quantities larger than the present estimated consumption and the invaluable contribution the Sugar Industry has made during the most testing period of the war are the highlights of the history of the Sugar Industry in India. It is therefore essential, nay, very vital and indispensable, to create conditions for the continued cessation of all imports of foreign sugar into the country and for the expansion of markets within the country and without the country, to as large an extent as possible.

Now that the war has come to an end and the popular and responsible Governments have taken charge of administering the country, we look with hope and optimism for a bright future for the sugar Industry. Already as we have stated before, the Panel report is before the Government and very soon a decision on the recommendations will have to be taken. Before, however, the Government make their final decision on the very valuable recommendations contained in the report, we suggest that they should consult the interests concerned and formulate their policy in consulation with them. We have no doubt that the Government of India constituted as it is today have at their heart the real interest and the well-being of the people of India. They will do all in their power to increase sugar production, and *pari passu* will also make an increase in the *per capita* ration to the citizens. We all know that consumption of sugar per head in India is the lowest in the world. Our production should, however, not only meet with the internal demand, but it should be of a magnitude that India can afford to export sugar to overseas countries. With the termination of the International Sugar Agreement there is a large scope for India to build up an export market. Before Java could come into the world's markets again, Indian sugar should acquire and consolidate its position in nearby markets as well.

Consumption of Sugar in India

The present annual consumption of sugar is roughly estimated to be about 11 lakhs tons per year (our *per capita* consumption is very small as compared with most other countries of the world in normal times as a glance at the relevant Table No. 5 in the *Sugar Industry at a Glance* will show). During the last two or three years due to the compulsory cut under rationing, the *per capita* consumption of sugar in India has even come down further. Consumption of sugar in India, however, is not steady and varies from year to year with the rise and fall of the price of sugar, and with changes in economic conditions, etc. But we will not be far wrong if we estimate the annual consumption of sugar in India at 10¾ lakhs tons in 1938–39, 10¼ tons in 1939–40, 11 lakhs tons in 1940–41, 10½ lakhs tons in 1941–42, 11 lakhs tons in 1942–43, 10 lakhs tons in 1943–44 and 1944–45. The inflationary conditions and the increased economic activity in the country due to the war-effort have resulted in the inclusion of a new class of consumers of sugar—a class which had never taken to consumption of sugar before. Consequently demand from civilian sources for consumption has also increased in quantity. Increase in the habit of consuming sugar is helpful to the industry for the future. It can definitely be expected that the internal consumption of sugar would be higher due to the higher standard of living following from the huge plans for the economic development of the country. The Bombay Plan which contemplates the provision of basic amenities like good food, etc. if implemented, will necessarily give an impetus for consumption of sugar as an essential article of food by millions in this country. Therefore in the post-war period, there are large prospects for increased consumption of sugar in the country itself. Even an output of 15 lakhs tons can now easily be consumed at the present scale of demand for sugar in the country, but, due to rationing, those that can consume more do not get it in sufficient quantities and villages and areas in the interior are indeed greatly starved.

Value of Imports of Sugar and Reduced Revenue from Import Duty

The development of Sugar Industry in India is a great national need of the country. The decreasing measure of dependence of this country on outside supplies of sugar will be clearly seen from an examination of the statistics of imports (*vide* Table No. 32). Since the loss of Java to the enemy there was a complete stoppage of imports of foreign sugar into India. We hope that there will be practically no import of foreign sugar now, India having passed the stage of self-sufficiency.

India Exports a Small Quantity of Sugar

Since the last two years, despite rationing of sugar in the country and the large military demands for it, India exported a small amount of sugar to the neighbouring countries. The export quota for 1943 and 1944 was fixed at 15,000 tons. In answer to a question from Mr. Manu Subedar in the Central Assembly on March

16, 1945, Sir J. P. Srivastava, the Food Member said that a quota of about 17,000 tons of sugar for export to neighbouring countries was permitted by the Government of India. Mr. Vishnu Sahay, the then Sugar Controller of India, in an interview, in October 1945, stated that the total export to countries contiguous to India were not more than 18,000 tons and allocations to Services showed a progressive decline from 1,03,000 tons in 1943-44 to 81,000 tons in 1944-45 and added that there would be a further decrease with the gradual withdrawal of troops from this country.

The export in 1942-43 was 30,836 tons, in 1941-42, it was 18,843 tons, and in 1940-41, it was 13,965 tons according to the Review of the *Trade of India*, for 1942-43 published in 1945.

With the end of the Europen war, the improvement in the shipping position will be definitely felt in a short time and the sugar-starved Middle East countries are likely to ask for Indian sugar. Therefore both to safeguard our internal consumption position and to help the neighbouring countries with reasonable exports of sugar, we suggest that the policy of maximisation of sugar output in India must be pursued with unrelenting vigour and undiminished enthusiasm.

Protection to the Industry to Continue till 31*st March* 1947

The sugar industry has made tremendous progress under protection granted to it since 1932. The results of the last 15 years have justified amply the wisdom in extending protection to the industry and its contribution is immense today for the welfare of the nation. It would be difficult to imagine what plight we would have been in, had there been no well-developed sugar industry in India and had we depended upon imported sugar for our essential needs. This aspect of the question is very forcefully and effectively brought out by Sir Purshotamdas Thakurdas in the course of his foreword to Mr. M. P. Gandhi's recent volume on "Problems of Sugar Industry in India—Scope and Prospects of Re-organisation", 1946, (425 pages).

Sir Purshotamdas observes:

> "If Sir George Schuster, as Finance Member of the Government of India, had not, as appeared then, taken his courage in both hands and decided to give protection to the sugar industry, the economic history of India during the war period as far as sugar consumers are concerned and indeed even as far as the requirement of the Army in India is concerned, would have been substantially different. Those who wish to rely upon what they fondly called cheap sugar from Java would have had the mortification of seeing the Indian public falling back only on local *gur* production and large quantities of sugar would have had to be imported for the British and American troops in India who would otherwise have had to go without sugar. Thanks to the policy of protection, however, they had a considerably greater ration of sugar than what fell to the lot of the civil consumer in India".

Protection should be continued for 3 years more

The question of protection has become insignificant with the dislocation in international trade and the temporary eclipse of Java from the sugar markets of the world. It can be said with a good deal of truth that Indian sugar has no competitor now in the field both in the internal markets as well as the sugar-starved middle East countries.

As has been observed elsewhere, the present protection to the industry has been continued till the 31st March 1947. A Tariff Board enquiry was to be undertaken before that period, in accordance with the statement made by the Government of India in the Central Legislature. It appears to us, however, that in view of the fact that the hands of the Tariff Board are at present busy with other more immediate enquiries, it will not be possible for them to conduct the enquiry into the sugar industry before the present protection expires on the 31st March 1947. We suggest, therefore, that the Government of India should continue the present protection for a period of further 3 years, during which time the question can be properly examined by the Tariff Board and action taken on their recommendations.

The present import duty on sugar is Rs. 6–12–0 per cwt. with which a surcharge of 20% and an addition of an equivalent excise duty of Rs. 3 per cwt. amounts to Rs. 11–1–7–1/5 per cwt (vide Table 32 on page XV).

Sugar Industry Protection And Consumers' Interests

It will be useful to discuss here the effects of the protection granted to the sugar industry in India from the point of view of the consumers. In our previous *Annuals* this question has deen discussed in detail. We would like to point out here, however, that protection to the sugar industry has been an unqualified success in the sense that the country has been recompensed for the aid given to the industry, particularly in the war period, and that there is a wide scope for future progress of the industry which can be secured by co-ordinated development in both industry and agriculture.

The sugar industry again *is unique in its link with agriculture, a link for which there is no exact parallel in the case of other protected industries.* Besides, broadly considered, it comprises not only the modern vacuum-pan sugar factories but also production by villagers of *gur* and *khandsari* sugar.[1]

As a result of the phenomenal development of the sugar industry within the last 15 years, this country is now self-sufficient in regard to the requirements of sugar, and the Indian Sugar Industry has played a very important role in the wartime economy of the country. With only a small sacrifice on the part of the con-

[1] For a detailed discussion of this aspect of the question as also the potentiality of further development of sugar industry in India, we would invite the reader's attention to Mr. M. P. Gandhi's "Problems of Sugar Industry in India—Scope and Prospects or Re-organisation"—with a foreword by Sir Purshotamdas Thakurdas (December, 1945—425 pages, Rs. 12/-).

sumers, we have been able to develop a very important large-scale industry in the country and thus create an achievement about which the whole country may legitimately feel proud. This gain in the long run will certainly outweigh the negligible sacrifice made by the consumers. In the years to come the consumers have every right to expect a lower sugar price along with a fall in the general level of prices.

A word of explanation is, however, necessary here in regard to the rise in sugar prices during the last four years. This rise was necessitated by the increase in the price of cane which again became necessary due to the increase in the prices of other commodities and the increase in the cultivator's cost of production. The increase in manufacturing costs on account of the increase in the cost of labour, materials, etc. has been very negligible and while fixing the price of sugar it must be stated that the Government of India had not made a liberal allowance for the same out of regard for the interests of the manufacturer. If anything, the manufacturer has a legitimate complaint that he has not been allowed a suitabiy higher margin of profit as in the case of several other industries, e.g. cotton textile, to which we have referred in the earlier pages. There is yet a possibility of there being a further increase in the price of sugar in 1946-47, but it must be remembered that this is entirely due to the necessity of giving a fair deal to the cultivator of cane and the great necessity of suitably increasing the price of cane with a view to ensuring the cultivation of cane in India at the required level. Apart from this compulsory increase in the price of sugar, it should be noted that the increase in the price of sugar relatively to the increase in the prices of other commodities has been far lower, as can be seen from a study of the index numbers of prices during the last few years.

Protection Decidedly an Advantage to the Country

After a careful appraisal of various relevant factors, e.g. the magnificent progress of the industry, the almost complete self-sufficiency that we have achieved in regard to sugar, the improvement in the lot of millions of cultivators as a result of better returns from the cane crop cultivation, the relief afforded by the industry in cutting down the problem of severe unemployment in the country, particularly amongst the educated and technical men, the subsidiary industries which have begun to spring up, the scope for profitable development which was afforded to indigenous dormant capital during a period of acute world depression, the development witnessed in villages in the *gur* industry, and the general confidence gained by industrialists and managers of big establishments in India by the development of the industry, we feel that any frank and unbiassed person cannot help arriving at the conclusion—perhaps the only conclusion—that the development of the Indian Sugar Industry has completely vindicated the policy of protection which has indeed proved a great blessing to the country. It has made possible for the people to get their quota of sugar, even during the war period, although perhaps

---

* The price was increased by Rs. 4-4-0 to Rs. 20-14-0, per maund, with effect from 23rd October, 1946, for all Provinces, except the Punjab and N.-W.F. where it would be Rs. 24 per maund.

in a smaller quantity, and thus has been responsible in eliminating a sugar famine which was the lot of many countries during the Second World War. The Sugar Industry today is unquestionably a great national asset and only due to its development to its present size, it was possible to supply this cheap, essential, energising food, containing 100 per cent carbohydrates, to the people of the country, at a time when there is a shortage of carbohydrates *in general in all parts of the world.*

Minimum Cane Prices and Production of Sugar in Provinces and States

We have so far dealt with the problems of sugar industry at length in the two major provinces of the U. P. and Bihar as well as with the total all-India production of sugar during 1944–45. Likewise we have dealt with the minimum prices of cane fixed in those two Provinces and many other problems peculiar to those two Provinces but having a bearing on the sugar industry as a whole. Let us turn for a moment towards other Provinces.

A Note on the Sugar Industry in Madras during 1944–45

The area planted with sugarcane in the Madras Presidency during 1944–45 viz. 1,55,596 acres shows a slight increase of 946 acres when compared with the area of 154,650 acres planted in the previous year.

In order to ensure adequate supplies of sugarcane to the sugar factories in the Province, the Madras Government prohibited the crushing of sugarcane for the manufacture of *jaggery* except under permits in most of the factory areas and directed the cane growers in specified villages in these areas to supply cane to the factories concerned. Basic minimum prices for sugarcane for delivery at the factory were fixed for all the factory areas in the Province taking into consideration, the price of sugar, the percentage of recovery of sugar, the cost of cultivation and profits on alternative crops. The prices were fixed in such a way as to ensure that the full benefit of the increase in the sugar price since 1944 was passed on to the cane growers by way of enhanced prices for cane. The prices so fixed ranged from Rs. 20—8—0 to Rs. 24 per ton in 1944–45 and from Rs. 21 to Rs. 26 per ton in 1945–46.

Sugar control continued during the year. Sugar distribution to districts was arranged according to a zonal scheme introduced by the Commissioner of Civil Supplies, Madras which worked satisfactorily.

Production of sugar in the Madras Province was 51,587 tons as against 44,250 tons in the previous year.

The supply of sugarcane to the factories during the 1944–45 season was steady and adequate and there was an increase of sugar production by 7,337 tons when compared with that of the previous year.

A Note on the Sugar Industry in Mysore during 1944–45

The season lasted for only 232 days during 1944–45 as against 250 days in 1943–44 and there was a decline both in the quantity of cane crushed as well as in

that of sugar produced, the cane crushed being 1,80,696 tons as against 2,04,587 tons and the sugar produced being 17,322 tons as against 20,210 tons in the previous year. The drop in production was due to an inadequate supply of cane to the factory as the ryots preferred to divert a portion of the cane grown by them for the manufacture of *jaggery* and to utilise some of their lands for the cultivation of more remunerative crops under the " Grow More Food " campaign.

The price fixed for sugarcane to be purchased from the ryots was Rs. 21 per ton as against Rs. 18 in the previous season.

The quantity of Molasses produced during the year was 7,518 tons and a substantial portion of it was utilised for the manufacture of potable and industrial spirits.

A Note on the Sugar Industry in Bombay-Deccan during 1944–45

The 1944–45 sugar crushing season in the Bombay Deccan was, it may be said, slightly better when compared to that of 1943–44. The cane crop was good, but there was a reduction in the sugar production due to a decrease in the cane area on account of the application of the "Bombay Growth of Food Crops Act, 1944".

The total production of sugar in the Bombay-Deccan in 1944–45 was 94,973 tons, that during 1943–44 being 1,02,206 tons.

Bombay Sugar and Power Alcohol Sub-Committee, 1946

In this connection it will be of interest to see the recommendations made in the report of the Sugar Power Alcohol Sub-Committee appointed by the Food and Forest Industries Sub-committee of the Government of Bombay, under the chairmanship of Mr. B. S. Dabke. The report of this sub-committee was submitted in August 1946. It recommends that the existing low crushing capacity of factories on the Nira Canals and Godavari Canals should be encouraged to expand to their maximum capacity of 800 tons, during the next 10 years. The report has also recommended to the Government to take up immediately the question of irrigation schemes and also to help factories in acquiring lands near the sugar factories. It also recommends the establishment of a new central distillery for utilising molasses and turn it into fermental by-products, *e.g.* industrial alcohol. It has also recommended that a distillery should be situated at a central place like Poona from which no sugar factory is beyond 150 miles.

The report also recommends that with the adoption of the prohibition policy by the Government of Bombay, they should insist on the owners of palms, dates and tads that the juice of these palms should be converted into *jaggery* or other *gur* products instead of being used as tapping for intoxicants. The report states also that the climatic conditions in Bombay resemble closely the tropical countries like Java, Cuba, etc. and that owing to the very heavy manuring required for the land and excessive water charges of Rs. 80/– per acre, the cost of sugarcane in

Bombay is slightly higher. As against that, the cane yield in the province is easily higher than that of the U. P. and Bihar.

The report estimates the total sugar production in Bombay Province at about 1,00,000 tons, while the consumption is about 2,40,000 tons on the basis of a population of about 3 crores, including the States, and the *per capita* consumption of 18 lbs.

The report states that according to the post-war irrigation scheme of the P. W. D. of the Government of Bombay, about 8,000 acres of agricultural land will be brought under irrigation where sugarcane can be grown in the next 10 years. It states, therefore, that it will be possible to establish two new factories each having a crushing capacity of about 400 tons. The report also quotes the observation by the P. W. D. that "being pressed by the Government of India for an increased supply of cane for the manufacturer of white sugar, the Government of of Bombay have agreed to the establishment of 3 factories on lift irrigation to be supplemented when necessary by canal water during the hot weather, but these factories are yet to come into existence."

The report also recommends the establishment of a Food Yeast Factory in in the province, and suggests to Government to take up its entire production of yeast for the first 3 years at a fixed price.

Effect of Grow-More-Food Campaign on Industry in Bombay

In this connection it may be recalled that the Bombay Government, with a view to further the "Grow More Food" campaign, passed in the middle of 1944, the Bombay Growth of Food Crops Act, thereby compelling the sugar factories of the Province to devote half of the land for cultivation of food crops like cereals for the season 1944–45 and thereafter. The enforcement of the Act entailed considerable difficulties as the sugar mills were obliged to put 50 per cent of their reserved cultivable area to produce food crops.

In Bombay, one distinguishing feature of the sugar industry is that mills themselves own large plots of land in the areas nearby and raise the major portion of their cane requirements for making sugar. In the U. P., Bihar and other areas, the mills on the contrary, depend for the supply of cane on individual cultivators and small peasants who cultivate the sugarcane crop in their fields. Thus the Bombay sugar factories possess a definite advantage of having all their cane supplies under their own control. The benefits of large-scale cultivation and the use of machinery and tractors for tilling the soil can, thus be enjoyed by the sugar mills who own large plots. But the enforcement of the Bombay Growth of Food Crops Act for the sugar mills is fraught with grave consequences for the sugar industry in the Province as the mills will have short supply of cane if 50 per cent of their sugarcane acreage is turned to the cultivation of food crops. Such a contingency will keep the mills idle in the crushing season for a considerable time for lack of cane supplies and result in a decreased output of sugar in Bombay, which is unfortunate, for various reasons.

Commenting on the application of the Bombay Growth of Food Crops Act to the sugar mills, Mr. M. P. Gandhi observed in 1945 :—

> "The Sugar Controller's recent reduction of the sugar quota for the various provinces this year, following the expected smaller sugar production in 1944–45, and the decision of the Bombay Government to enforce the Bombay Growth of Food Crops Act, thereby compelling the sugar factories of the Province to devote half the land for the cultivation of food crops, suggests lack of co-ordination in the activities of the various departments of Government. The enforcement of the compulsory cultivation of food crops on 50 per cent of the cane areas in Bombay Province will result in a further reduction in the output of sugar in Bombay where the total production last season (1943–44) was about 96,000 tons, while the quantity allotted for civil consumption was about twice as much. When this reduction in production by the Deccan factories in 1945–46 is coupled with the short-fall in the U.P., Bihar, Punjab and Bengal where the acreage under cane is 25 per cent smaller, the shortage of sugar production in subsequent seasons in the whole country will be keenly felt by the people whose ration is likely to be curtailed if the defence services' demands and exports are not materially reduced."

It is to be hoped that the Bombay Government will re-consider its decision even now in the light of the declared aims of the Food Department and the Sugar Controller to *maximise* sugar output in the country, and to modify the operation of the Act so as to exempt canegrowers, near factory areas, whether individuals or companies, from the compulsory turning of 50 per cent of their land into producing food crops. This measure is very essential in the interests of the immediate needs of the consumers as well as the future of the sugar industry in the Province, for after all sugar is also a very valuable article of diet, which is in short supply.

In any cursory survey of the progress of the sugar industry in Bombay-Deccan, special mention must be made of the recent experiments that are being made for the manufacture of sugar-candy in India. A sugar-candy research scheme, financed by the Imperial Council of Agricultural Research is in progress at Ravalgaon (Nasik District) for the last 3½ years. Outstanding improvements such as the use of steam and modern machinery have been introduced in the process of the manufacture of sugar-candy. The plant at Ravalgaon is the first of its kind in India and in quality some of the varieties of candy produced equal if not excel the imported sugar-candy. Arrangements are also being made to train chemists and *Karigars* intending to be employed in this industry.

There are very few mills in India capable and equipped with the necessary plant for the production of sugar-candy which is very much in demand in this country and is largely imported from abroad. The Ravalgaon Sugar Farm has

made efforts to produce good variety and types of sugar-candy crystal. We suggest that sugar mills in other provinces should explore avenues for producing sugar-candy in the years to come.

A Note on the Sugar Production in Bengal and Other Areas in 1944–45

Famine and disorganisation in civilian life in Bengal resulted in lower production and short-season. Production of sugar in Bengal for 1944–45 amounted to 15,256 tons as against 13,600 tons in the previous year while the yearly consumption is as high as 1⅓ lakh tons for Bengal and the neighbouring States. The number of factories that crushed cane were 5 against 6 in 1943–44 and even those under work did not obtain a satisfactory crush for lack of cane supplies.

In spite of an increase specially premitted to Bengal factories in the price of sugar-cane, the production did not go up to much, owing to the inadequacy of cane supplies during 1944–45.

In the Punjab, N.W.F.P., Orissa and Indian States production of sugar during 1944–45 was as we stated before much lower as compared with 1943–44. The reasons for such a low output need not be repeated over again. Production of sugar in Indian States amounted to 1,06,400 tons in 1944–45 compared with 123,800 tons in 1943–44, thereby showing a decrease of about 17,400 tons.

In the Punjab, N.-W.F.P.,Orissa and Indian States production of sugar during 1944–45 was fairly good and there were no special features. Production of sugar in Indian States amounted to 1,06,400 tons in 1944–45 compared with 85,000 tons in the previous year, thereby showing nearly 45 per cent increase in the total output.

MOLASSES AND POWER ALCOHOL PRODUCTION

Molasses is a very important and valuable by-product of the sugar industry and output of molasses in India as far in excess of the present consumption. So far mainly due to official indifference and lack of sympathy, the Power Alcohol industry which can convert a large quantity of molasses into useful alcohol fuel for motor cars and trucks has not developed in India. Only at the eleventh hour when there was acute shortage of petrol in the country, was attention turned seriously to the potentialities of power alcohol as a substitute fuel which can be mixed with petrol profitably. Sugar interests have been urging since long the development of this useful industry but no concrete steps have been taken on an adequate scale. Consequently we have only a few small distilleries for the production of rectified spirit and power alcohol from molasses. The wastage of molasses for lack of demand has been tremendous in India. At present they are being used for refining tobacco, for rectified spirit, for power alcohol production in small quantities in the U.P. compared with the huge production, etc. But large quantities are being wasted at the mills for lack of demand and some are used as manure at low prices. If the power alcohol industry would be adequately

developed in this country, it will not only result in a drop in imports of petrol and saving of money, but also give stability to the sugar industry, due to the profitable utilisation of this by-product. This problem deserves the earnest attention of the industry as well as the Government in the post-war planning schemes and we trust the Government of India will take speedy action in the matter now.

Production of Molasses in India during 1944–45 Season

The production of molasses in India during 1944–45 directly from Sugar Mills amounted to 3,28,300 tons against 4,38,700 tons within the previous year. The recovery percentage was 3·51 as against 3·61 in the last season. The U. P. alone produced more than 50% of the total output of molasses by Sugar Mills, viz: 1,74,800 tons against 2,62,600 tons in 1943–44, while Bihar produced 53,900 tons against 68,300 tons in 1943–44. Bombay produced 27,300 tons against 28,700 tons in 1943–44. The production of molasses by *Gur* refineries in India in 1944 amounted to 3,850 tons. The recovery percentage was 28·65%.

For the season 1944–45 the total production of molasses *from all sources*, therefore, amounted to 3,28,300 tons. Compared with this production, the demand for power alcohol and rectified spirit manufacture was very low and poor. The chief complaint in India has been that the large surplus production of molasses is being annually wasted without any beneficial use and that the disposal of the enormous quantities produced is becoming a nuisance problem for mills from year to year. Since only a small quantity of molasses is used for refining tobacco and power alcohol and as no other profitable means of employment have been so far adopted, a large quantity of molasses is used as manure and other unprofitable uses at cheap prices. The wastage of molasses in this country is thus very large, and should be avoided.

U.P. Power Alcohol Act, 1940 (*Act VIII of* 1940)

In August 1940, the U.P. Government promulgated the Power Alcohol Act controlling the production, supply and distribution of power alcohol in the U.P. as fuel with petrol. Some of the recommendations of the Joint Power Alcohol Committee of the U.P. and Bihar,* (1938) which were put in cold storage for a considerable time, were given effect from April 28, 1941 by the above enactment. Orders were issued at once for the enforcement of the Act in the districts of Bareilly, Bijnor, Budaon, Pilibhit and Chandausi, Amroha tehsils of the Moradabad district. The production of alcohol to be mixed with petrol as fuel for motor cars was fixed at 1 : 4 or 20 parts of alcohol with 80 parts of petrol to make a unit of power fuel. The Act was subsequently extended to other areas and the price of alcohol was fixed at 6 annas per gallon in the beginning. To increase production, licenses were granted to the Kesar Sugar Mills and the

* The Editor of this *Annual*, Mr. M. P. Gandhi, was a member of this committee. Its recommendations are summarised in the 1939 *Sugar Industry Annual*.

Oudh and Hindusthan Sugar Mills jointly for the manufacture of power alcohol from molasses by importing plant and machinery from abroad. Following the grant of licenses, these mills placed orders in the United States for the delivery of the necessary plant. These plants, however, never arrived.

Later on Sir Azizul Haque made another reassuring statement about production of power alcohol in the country in the Assembly on 15th November 1944. The Commerce Member stated that every encouragement would be extended for the development of power alcohol industry in the country. He said that there were four power alcohol plants in operation at that time in the country and their total capacity would be between 1¾ to 2½ million gallons per year. He also revealed that orders were placed for power alcohol plants only in September 1944 in America but the plants had not been released by the American authorities.

Government Dilatory in Encouragement of Power Alcohol Production

The Government of India have been hopelessly negligent in encouragement of power alcohol manufacture in India before and in the early stages of the war. If only arrangements had been made in time for stepping up production of power alcohol as a substitute to petrol, there would not have been such a chaotic disorganisation in internal road transport as was witnessed during 1943 to 1946. Even the sugar industry would have been greatly facilitated by the running of lorries for the conveyance of cane. *After meeting the internal miscellaneous demands, more than 4 lakhs tons of molasses are available in this country, which if utilised, will produce no less than 22 million gallons on the basis of one ton of molasses producing 56 gallons of power alcohol.*

As pointed out, in the previous *Annuals*, both the Central and the Provincial Governments have been dilatory and unhelpful in the matter of production of power alcohol and no progress was made in regard to actual production of power alcohol while other countries developed power alcohol production, despite their vast petrol resources. The last World War and the shortage of petrol suddenly overtook the country by surprise and the authorities realised the need for development of power alcohol only when the crisis came on the neck and the internal transport situation became disorganised. Then it was too late to secure immediately any machinery and plant for production and so the existing distilleries alone had to be asked to go full speed ahead and production was stepped up, though to a very limited extent. The American Technical Mission headed by Dr. Grady, we understand, strongly recommended the production of power alcohol to relieve the pressure on transport. It was believed that the necessary plant would be imported under Lease-Lend on the strength of the recommendation, but all the high hopes aroused by the visit of the Mission were belied.

Development of Power Alcohol Industry in India urgently needed

In view of the importance of the development of the power alcohol industry immediately in the country and our feeling that the National Government will

give it an impetus, we detail below a short official note on the history of the development of power alcohol industry in the U. P., since 1928. A perusal of this note will indicate how dilatory the action has been in the development of this important industry in the past and will point the way for the future.

A NOTE ON THE HISTORY AND DEVELOPMENT OF POWER ALCOHOL INDUSTRY IN THE UNITED PROVINCES

Report of the Joint Power Alcohol and Molasses Enquiry Committee, 1938

"The first step in the development of the industry was taken in the appointment of the U. P. and Bihar Joint Power Alcohol and Molasses Enquiry Committee, 1938, (of which Mr. M. P. Gandhi was a member), whose recommendations established beyond controversy the fact that the production of power alcohol was desirable not only in national interest for the utilisation of an important bye-product of the sugar industry, but that it could be produced at a reasonable and economic cost.

The U. P. Power Alcohol Act, 1940

In pursuance of the recommendations of this Committee, it was decided to undertake necessary legislation to provide for the fostering, development and regulation of the power alcohol industry. The Act was passed by the Legislature in September 1939, but did not receive the assent of the Governor until July 28, 1940. A short amendment of the Act was undertaken in 1940 to provide for (*a*) the use of straight petrol in an emergency, and (*b*) the exemption of Defence requirements of Motor Spirit from compulsory use of the mixture. The main provisions of the Power Alcohol Act are:—

(*a*) Compulsory admixture of petrol with power alcohol in a prescribed proportion, which is at present in the ratio of 80 : 20;

(*b*) Complete monopoly of purchase and sale of power alcohol by the Provincial Government; and

(*c*) Power to regulate the price within which the mixture of petrol and power alcohol shall be sold.

The Act has stood the test of experience and no amendments of any far-reaching character are necessary, according to the Excise Commissioner's view.

The First Unit of Production in Northern India

The Central Distillery, Meerut, imported a French plant in 1939, but owing to the delay in the enactment of the Power Alcohol Act and certain consequential arrangements for mixing by the oil companies, the unit did not commence production until April 10, 1941, and the first issue of the mixture was delivered in Agra on April 15. The distillery has an installed capacity of 6 lakhs gallons a year. It commands Meerut and Agra mixing depots which absorb about 3 lakhs gallons a year.

New Units of Production

During 1942, when there was a serious shortage of motor spirit, and supplies from overseas were threatened, the Government of India decided to promote the erection of new distilleries. As there was some doubt whether the requisite technical skill would be available in the country for the construction of new units, it was decided to limit the construction to distilleries producing high strength rectified spirit only, which means spirit containing 96% alcohol as against 99 5% content in power alcohol. It was anticipated that the new units producing high strength rectified spirit would be able to undertake conversion to the production of power alcohol by either adding a new column or importing one from abroad after the war. The new units and their capacity is as follows:—

		(Lakhs gallons a year)
(1)	Shamli Distillery	... 6
(2)	Daurala Distillery	... 5½
(3)	Simbhaoli Distillery	... 6
(4)	Raja-ka-Sahaspur Distillery	... 6
(5)	Gola Distillery	... 4½
(6)	Hargaon Distillery	... 4½
(7)	Nawabganj Distillery	... 6
(8)	Captainganj Distillery	... 6
(9)	Rampur Distillery	... 6

Production at New Distilleries

With the exception of the Meerut Distillery, all other units are at present (1946) engaged in the production of high strength rectified spirit (96% by volume) designated as Fuel Alcohol. As neither the distillers were ready to produce power alcohol nor the oil companies ready to undertake mixing, it was decided as a provisional measure to make available fuel alcohol for automotive purposes to overcome the shortage of petrol and to dispense with the use of producer gas which, apart from being troublesome to handle, is reputed to be harmful to motor engines. As the Power Alcohol Act did not contemplate the use of neat rectified spirit for fuel purposes the Fuel Alcohol Rules governing production and distribution were framed under the authority of the D. I. R. Regulations. The use of fuel alcohol requires certain minor adaptations in the carburettor, such as enlarging the jets and adjusting the float. Fuel Alcohol suffers from two drawbacks though in all other respects it is considered the equal of petrol. The mileage per gallon for equal quantities is ⅓rd less in the case of fuel alcohol; also the retail selling rate is on an average Rs. 0-2-0 above the price of petrol.

Distribution of Fuel Alcohol

Fuel Alcohol is conveyed from producing distilleries by tank lorry or tank wagon to allotted pumps for retail sale. The Distillers are responsible for production and door delivery after which the distributing licensees, viz. the oil

companies handle the distribution ex-pump at a remuneration of Rs. 0–4–0 to Rs. 0–5–0 a gallon. A very large number of public vehicles have been converted to the use of fuel alcohol and the demand is steadily rising. The arrangements for distribution are as follows :—

Name of Distillery	*District*	*No. of pumps*
1. Shamli	Debra Dun	2
	Saharanpur	2
2. Daurala	Meerut	2
	Begamabad	1
	Muzaffarnagar	1
3. Ajudhia	Moradabad	1
	Haldwani	1
	Bareilly	3
4. Rampur	Kathgodam	3
	Ranikhet	1
5. Nawabganj	Lucknow	3
	Basti	1
	Gonda	1
6. Hargaon	Sitapur	1
	Shahjahanpur	1
7. Gola	Cawnpore	4
8. Captainganj	Gorakhpur	1
	Allahabad	2
	Azamgarh	1

The total offtake of fuel alcohol in 1945 was about 3 lakhs gallons a month.

Future Development of the Industry : Long-Term Policy

The Government of India appointed a Panel in 1945 to report on the future development of sugar, food-yeast and power alcohol industry. The report has just been finalised (1946). Broadly speaking, the accepted model of production and distribution is the U.P. Power Alcohol Act. An economic unit of production must be of a minimum capacity of one million gallons a year. Altogether 11 units with a total productive capacity of about 11½ million gallons of power alcohol are planned. This means that the existing units at Shamli, Daurala, Simbhaoli, Raja-ka-Sahaspur, Gola-Hargaon, Nawabganj and Captainganj must increase their capacity to the prescribed standard. Entirely new units are proposed at Baheri, Hardoi, Basti and Sardarnagar. When the programme is fully under way, it will raise new problems of production and distribution. On the production side, much has yet to be done to improve the technical efficiency of the existing units, to assure a regular supply of requisite raw materials such as molasses, coal, chemicals, etc. and to secure the necessary re-adjustment in the incidence of railway freight for the movement of molasses and alcohol so as to

7491

M. L. D. S. LIBRARY MADRAS

cheapen the cost of fuel. On the distribution side, the oil companies would be required to undertake conversion of mixing depots all over the province with a view to handling the mixture. Even so, as the consumption of petrol in the U. P. taking it at the peak war level is about 14 million gallons a year, only about 3½ million gallons of power alcohol out of a total potential of about 11½ could be utilised for the mixture within the province. The exportable surplus of about 8 million would either be transported to the adjoining provinces or used as straight power alcohol within the province. In this connection it may be mentioned that straight power alcohol behaves in engines as well as petrol and is much superior to high strength rectified spirit designated as fuel alcohol. There is however a slight loss in mileage efficiency.

Fuel-Alcohol : Short-Term Policy

It is intended to give up fuel alcohol as soon as the existing units are converted to the production of power alcohol. Considerable difficulty is experienced in the procurement of necessary materials for construction such as pipes, corrugated iron sheets, etc. Simbhaoli, Daurala, Gola and Nawabganj have completed the conversion; the others expect to be ready within six weeks. The oil companies have been asked to undertake conversion to mixing depots at the following places :—

Muzaffarnagar, Bareilly, Kathgodam, Moradabad, Aligarh, Muttra, Etawah, Agra, Meerut, Hathras, Cawnpore, Lucknow and Jhansi.

It is proposed by the U.P. Government to utilise power alcohol in surplus of that required for mixing as straight fuel in replacement of fuel alcohol.

Power Alcohol

It is intended by the U.P. Government to undertake mixing, to begin with, in the Meerut and Rohilkhand Divisions and possibly at Lucknow, Cawnpore and Jhansi. Negotiations have also been started with the Delhi Province for the export of power alcohol for mixing. The oil companies were given a guarantee recently about the end of March, 1946, that Government would utilise their services for handling the mixture and that if for any reason within the control of Government, their services are not utilised, they would be entitled to compensation for the installations put up in furtherance of the objective. The question of commission to be granted to the oil companies for handling distribution is a matter of negotiation. The surplus left over after mixing, which would be considerable, would be utilised as straight fuel.

Cost of Production

The retail price of fuel alcohol is made up as follows :—

		Rs.	a.	p.	
Cost of Fuel Alcohol ...	...	0	14	6	per gallon
Transport charges varying from 0-1-6 to 0-3-0 according to haulage	...	0	2	6	" "
Govt. of India Excise Duty ...	...	0	12	0	" "
Commission to Oil Companies	...	0	4	0	" "
		2	1	0	

The U. P. and Bihar Power Alcohol Enquiry Committee* report estimated the cost of production at 0-6-6 a gallon on the assumption that molasses would be available at 0-6-0 a maund. Costs of production have generally gone up during the war, but even so the current cost of production at 0-14-6 a gallon is fairly high and would have to be brought down in the interest of the industry. This can be done, for instance, by:

(*a*) Improving the technical efficiency of the units of the production through expert advice. The plants have been put up during war-time and contain many improvisations which put up the cost of production needlessly.

(*b*) Assuring the supply of standard quality molasses. The molasses at most mills are stored in Kuchcha uncovered pits. Pits of approved specifications must be put up without delay. Also as there is scarcity of molasses in certain regions partly on account of distillery programmes and partly on account of vagaries of transport, the black-market rate of molasses for civilian consumption is considerably higher than the scheduled rate of supplies to the distilleries. This has introduced the new evil of deliberate adulteration which has to be checked by suitable legislation. Legislation is equally necessary to provide for compulsory allocation of zones of supply.

(*c*) Regular supply of good grade coal. The distilleries have been receiving less coal and more dust; also the supply is most irregular.

(*d*) Providing for peak production at distilleries by arranging for a fuller offtake. In this connection it may be recalled that though the productive capacity of the 10 new units is about 6 million gallons, the offtake of fuel alcohol is barely 50% of the total. As overheads remain constant, the cost of production is naturally high.

Transport

There is inadequate transport both for the movement of molasses and alcohol. The bulk of the supply is by tank lorries and breakdowns with such transport are inevitable. We need a fairly large fleet of tank wagons for the fulfilment of the programme.

Molasses Distribution

The Controller of molasses for all the sugar mills, is required to arrange supplies for the Punjab, U.P., Bihar, Bengal, Sind and certain Central Indian States. This is done in accordance with the Molasses Control Order enacted under the D. I. R. Owing to inadequate transport and scarcity of standard quality molasses after the monsoon, there is a drop in production which may have far-reaching effects this year (1946) in view of the Governments' heavy commitments.

Materials required for Construction and Production

Most distilleries are held up for want of small quantities of iron pipes, etc. Great difficulty is experienced in securing the release of these materials. The

* For details, *vide* Indian Sugar Industry *Annuals*, 1939, 1940 and 1944.

matter was discussed recently (1946) at a meeting with the Transport Commissioner and representatives of the oil companies.

Legislation in U. P.

There are three relevant statutes :—

(1) The Power Alcohol Act and Rules;

(2) The Fuel Alcohol Rules enacted under the D. I. R.; and

(3) The Molasses Control Order 1946 enacted under the D. I. R.

The Power Alcohol Act as its name implies can relate to Power Alcohol (99.5% only) and not to fuel alcohol (95%). Since it is intended to replace fuel alcohol with straight power alcohol as soon as the conversion is complete, it appears unnecessary to amend the Power Alcohol Act to provide for the production and distribution of fuel alcohol. Section 9 of the Power Alcohol Act provides for the sale of straight power alcohol for automotive purposes as follows :—

> "No person shall sell, or keep for sale, any power alcohol for the purpose of its being used to provide motive power for any form of motor vehicle, except under the authority and subject to the terms and conditions of a licence granted in that behalf by the Collector."

U. P. Government's Suggestion for Amendment of Power Alcohol Act

The model for the distribution of straight power alcohol would be the same as that in force for fuel alcohol. The distribution is undertaken according to the terms and conditions prescribed in the rules by Government. It cannot be left to the individual discretion of the Collector of a district, as there must be a Central controlling authority. It would be quite sufficient to amend Section 9 so as to substitute for "the Collector", "the Excise Commissioner or Government" at the end of the Section. Beyond this minor amendment, no other alteration is required, unless it be the object to bring within the purview of the Power Alcohol Act, the control and distribution of molasses as well. The Power Alcohol Act is confined to matters relating to the production and distribution of power alcohol. Molasses is only one of the raw materials required for the production of alcohol and it is doubtful whether control measures in regard to molasses can suitably be incorporated in the Power Alcohol Act, especially as the control would extend to quantities not only required for distillery purposes, but also for non-distillery purposes. It may be argued, as has been done by the Indian Sugar Syndicate, that control over quantities not required for distillation purposes is unnecessary, but the Excise Commissioner feels that this ignores the consideration that it is impossible *a priori* to draw a distinction between stocks destined for distilleries and those not so destined on account of fluctuating production both at distilleries and at mills. Thus stocks requisitioned for distilleries are often released in the civilian market and *vice versa.* The Excise Commissioner is of the view that it would be advantageous to have a new Act to deal with this matter. This may be known as the U.P. Molasses Control Act, 1946, with the following preamble :—

"Whereas it is expedient to provide for the grading of molasses produced by sugar factories and for regulating the supply to distilleries and the price at which it may be purchased, and for such other matters as may be incidental thereto, it is hereby enacted as follows :—

A draft of the new Act to provide for the grading and marketing of molasses was under preparation (1946)."

Power Alcohol in Hyderabad State

The Nizam Government also passed the Power Alcohol Act applicable in their territory and enforced the use of alcohol as fuel. The Power Alcohol Factory started by the Government and equipped at a cost of Rs. 8 lakhs has been working well from the last three years producing nearly three lakhs gallons of power alcohol a year and utilizing about 6,000 tons of molasses.

Power Alcohol in Bombay and Other Areas

The Bombay Power Alcohol and Petroleum Act of 1942 received the assent of the Governor-General in December 1942 and came into force at once. Use of power alcohol as admixture with petrol was compulsorily enforced in some areas in Bombay. One of the sugar mills in Deccan was equipped with the necessary plant for the production of about 30,000 gallons of power alcohol per month.

Other Provinces like Madras, Bengal, the Punjab and some Indian States also took steps later on gradually to introduce the compulsory use of power alcohol and rectified spirit with petrol as fuel.

Power Alcohol in Mysore

The Mysore Power Alcohol Act was enacted in 1939, and power alcohol continues to be produced in Mysore, for compulsory admixture with petrol.

New Units for Production of Power Alcohol

It was stated in the course of a reply given in the Assembly on the 22nd March 1945, that for the production of power alcohol and high strength rectified spirits against licences issued by the U. P. Government, distilleries were being erected at six places in the U. P., namely, Simbhaoli, Shamli, Hargaon, Gola, Captainganj and Deoria. The distillery at Daurala came into production in 1944, but its power alcohol column was not yet full in operation. It was stated in the Assembly that the question of developing power alcohol production in India would be investigated shortly by a panel in the Planning and Development Department. Such a panel was appointed in 1945 and although its report in full is not yet available, a gist has been given in the note in the above paragraphs in regard to the history and development of power alcohol in the U. P. Briefly, the report planned 11 units with a total production capacity of 11½ million gallons of power alcohol. This means that the existing units at Shamli, Daurala,

Simbhaoli, Raja-ka-Sahaspur, Gola, Hargaon, Nawabganj and Captainganj must increase their capacity to the prescribed standard.

Entirely new units are proposed at Baheri, Hardoi, Basti and Sardarnagar in the U. P. An economic unit of production has been reckoned at one million gallons per year. The consumption of petrol in the U. P. being reckoned at about 14 million gallons per year, only 3½ million gallons of power alcohol out of a total potential of 11½ million gallons could be utilised, and the balance 8 million gallons would have to be exported to the adjoining provinces or used otherwise as straight power alcohol within the province.

Molasses Control Orders in Provinces

We pointed out in the 1944 *Annual* that the U.P. Government placed a restriction on the movement of molasses by rail to any station in the U.P. or outside except under permit, by an order issued on the 9th September 1942. The order also provided for the fixation of minimum prices at which persons holding molasses were to sell to distilleries. This order was intended to ensure that adequate supplies of molasses were made to distilleries for the manufacture of power alcohol and rectified spirit for use as motor fuel.

On the 13th March 1944, the U.P. Molasses Control Order was amended with a view to rectifying the mistakes of omission and to enlarge the scope so as to include all the people, including the dealers, to come under the Control Order. The Bihar Government also issued a similar order controlling the price of molasses and disposal by a notification on the 26th May 1943. The Bengal Government also passed their own Molasses Control Order.

No Central Control over Molasses and Effects of Present Control

The total ban on the disposal of molasses in the U.P. and Bihar naturally met with considerable opposition from the industry and hence it pointed out that with the very slow progress in regard to the production of power alcohol, there was no need for storing of molasses. The requirements of distilleries were 50,000 tons, while the total production of factories may exceed 3,00,000 tons per year. It was urged that the control was not only not necessary, but put the factories to undue hardships, and a recommendation was made by a resolution passed at the annual meeting of the Indian Sugar Mills' Association in September 1944, urging the two Governments of the U.P. and Bihar to withdraw the control orders in the best interests of the industry. It was also urged that there were no restrictions on molasses outside the U.P. and Bihar, that there was no central control over molasses and only the U.P. and Bihar were unduly penalised by the control. The result was that while prices in other provinces were high, the U.P. and Bihar factories were compelled to sell at low prices, and besides the restriction over movement also created difficulties.

The Government of the U.P., as observed before, undertook a temporary measure whereby they produced only rectified spirit instead of absolute alcohol for

admixture with mineral petrol in fixed proportion. The exclusive use of alcohol, and that, too, of a lower strength was not meeting the satisfaction of heavy vehicle-owners who were compulsorily made to use the same. It is absolutely essential, now that the war is over, that the production must necessarily be switched to absolute alcohol at the earliest opportunity, and its admixture with petrol should be brought into force as provided in the U.P. Act.

The peace-time need in India of petrol is approximately 2,25,000 gallons per day of which 20 per cent or 45,000 gallons could be substituted by power alcohol. If a few more distilleries could be set up, the dependence of India on petrol and motor spirit could be reduced to the extent of 20 per cent, which would be no inconsiderable gain. We also suggest that suitable encouragement should be given to the sugar factory owners and facilities given to them for fabricating plants to the extent that is possible in India, and for obtaining the rest from the U.S.A. where some orders were placed a few years ago.

Pooling of Molasses by Sugar Syndicate (1946)

Mr. Karamchand Thapar, Chairman of the Indian Sugar Syndicate, observed at a meeting of the Syndicate held in May 1946, that it was necessary that the molasses of factories in the U.P. should be pooled in order that distilleries may be supplied molasses at controlled rates, and the quantities not required by them should be sold in the market by the Syndicate at reasonable rates, and the profits so derived should be spread over the entire pool so that all the factories may receive equitable treatment.

U.P. Distilleries to produce Power Alcohol

It is understood that during 1946–47 about half-a-dozen distilleries now producing power alcohol would switch over to the production of pure alcohol. Fuel spirit is now selling at Rs. 2–3–6 per gallon, while the cost of petrol is only Rs. 1–15–0 per gallon in the U.P. Not only the higher price, but the poor performance also limits the use of power alcohol. If power alcohol is produced and sold at the same rate as petrol, there will be improvement in performance and hence, perhaps, there would be a larger demand for traction purposes also.

We feel that the industry is correct in its view that there is no point in controlling the price and movement of molasses, beyond the requirements of distilleries, to whom it must be supplied at a rate determined by the Government. We trust that the Government will adopt the suggestion made by the industry and allow it to pool its molasses in order to ensure an equitable distribution of profits among the industry.

Problems of Power Alcohol Plant Erection Location and Size

In erection of power alcohol plants in the provinces some facts should be taken into account. The location and size of the distilleries are two important considerations. Location of distilleries centrally in relation to sugar factories will,

to a large extent, minimise the trouble and avoid wasteful expenditure on transport. The problem of sm allunits of manufacture *versus* bigger units is also another which requires consideration. It is a moot point whether small units should be allowed to be set up in factory areas, each producing rectified spirit out of its own molasses or whether molasses should be pooled and bigger units which would be more economical in working should be allowed to be put up in centrally-located places. The Joint Power Alcohol Committee which reported to the U. P. and Bihar Governments on the manufacture of power alcohol stated that it would be more economical to have large-sized plants in centrally-situated localities rather than each factory having a small unit of its own. The Sugar and Molasses Panel has recommended establishment of 11 Distilleries in the U. P. 2 in Bombay, 2 in Madras and Orissa, and 1 in Bengal (Report submitted in 1946).

New Uses for Molasses—Manufacture of Food Yeast

Among the various uses to which molasses are put, production of yeast, a food product of high nutrition-value is one. *The Australian Sugar Journal* says that 'yeasts extracted from sugar molasses contain the essential amino acids in kind and proportion very similar to those found in good mixed diet'. It is learnt that Colonial Food Yeast Ltd. is establishing a yeast factory adjoining the sugar mills in Jamaica. The Government of India is also reported to be planning to build a food yeast plant in India. According to Mr. A. C. Thaysen of the Department of Scientific and Industrial Research in the United Kingdom, the really nutritive part of meat, eggs, fruit and meat is found by British experiments of food yeast from molasses. The production of food yeast from molasses shows a new use for molasses and experiments in this direction are worth pursuing. If a portion of India's vast molasses production can be converted into food yeast of valuable vitamin content, it will be a great asset not only to the national diet improvement but also to the sugar industry whose production of molasses is largely wasted now, in an uneconomic manner.

Food Yeast from Molasses

In 1946 the Food Department investigated the economies for a factory producing 3,000 tons of dried food yeast from molasses and will assist the trade to take up the project. It is estimated that the plant will involve a capital investment of about Rs. 25 lakhs with an annual production worth about Rs. 16 lakhs. At the calculated cost of 6 annas per maund, it is considered that there will be an adequate demand for the production of the factory.

Use of Molasses in Land Reclamation

Dr. Nil Ratan Dhar, Deputy Director of Public Instruction in the U. P. and head of the Chemistry Department of the Allahabad University, made some valuable researches on the utilisation of molasses. He discovered that molasses could

be utilised for reclamation of waste land. In a lecture at the Allahabad Agricultural College, Dr. Dhar suggested the use of molasses mixed with press-mud for reclamation of alkali land. He said that molasses contain about 60 per cent carbohydrates, 2 per cent calcium salts, potash phosphates and some free acids. Citing the case of Mysore where molasses were used in rice fields, Dr. Dhar said that the Mysore Government obtained 1,200 to 1,800 lbs. of rice per acre on alkali land reclaimed, where as the crop had failed completely before. They were hopeful that molasses could be used for reclamation of waste land. Molasses with press-mud, another by-product of the sugar industry, could be used for preventing soil-erosion. Such new uses for molasses will necessarily increase its value as well as price in future as and when they come into vogue.

NEW USES FOR BY-PRODUCTS OF SUGAR FACTORIES

In an article contributed recently by R. C. Srivastava and others of the Imperial Sugar Technology, some new uses for press-mud were discovered. It was found that sulphitation press-mud can be used for (*a*) the preparation of activated carbon, (*b*) preparation of a dyestuff, (*c*) as fuel. The carbonatation press-mud is shown to yield good filter-aids. Among the new uses discovered for the sulphitation and carbonatation press-muds are (1) a patent for fire extinguishers, (2) metal-polishing powder, (3) Board chalk, (4) Putty-paste for slate colour and (5) Tooth-powder. It is a good sign that research is being applied more and more for the discovery of new uses for what were hitherto thought as waste products to be thrown away.

By-products and Auxiliary Industries—Rayon and Plastics

Bagasse is one of the by-products of the sugar industry. Due to the costs of transport and disposal, mills have been making use of it as fuel and in the coal shortage days, all of it is used as fuel. It has been found out that artificial silk or rayon can be manufactured from bagasse. The development of rayon manufacture from bagasse will establish another by-product industry in India and our dependence upon imported silks will be less. Recently the *Journal of Scientific and Industrial Resebrch* has mentioned of the possibilities of producing plastics from bagasse which is not now put to any use. These suggestions are, indeed, helpful, and science and research should be mobilised for better exploitation of its possibilities for industrial purposes.

Confectionery, Biscuit and Canning Industry

Another direction in which there promises to be scope for development in India is the establishment of a confectionery, biscuit and, fruit-canning industry. India imports large quantities of confectionery, biscuits, and canned fruits from other countries despite the fact that she has valuable raw material and an unenviable sugar industry. It is possible to develop the confectionery industry in India and in the next few years some industrialists may explore these line profitably.

Sugar is required for the manufacture of biscuits and confectionery and fruit-canning. Therefore the establishment of these auxiliary industries of the sugar industry offers innumerable new outlets and demands for sugar. Some progress has been made in regard to fruit-canning in India in 1946.

LAW & LEGISLATION DURING 1945 and 1946

Sugar and Sugar Products Control Order, 1946 *And Gur Control Order,* 1946

The above two orders originally enacted in 1943, were superseded and fresh orders were re-enacted in 1946, and were modified from time to time. For the text of the orders reference is invited to pages xxiii to xxvi under "Sugar Industry at a Glance".

Protective Duties on Sugar Continued Till 31*st March* 1947

The protective duty on sugar which expired on the 31st March 1946, was continued for a period of one year until 31st March 1947. A tariff enquiry was to be undertaken before March 1947, but as the hands of the Tariff Board are now full up, we think that the enquiry will be delayed, and in the meanwhile we expect that protection will be continued till the 31st March 1948 or 31st March 1949, during which period a Tariff Board enquiry will be instituted in the industry.

U. P. Sugar Factories Control Rules Amended—Technical Committee appointed for U.P. and Bihar

By a notification dated the 28th November 1944, the U.P. Sugar Factories Control Rules were amended for the appointment of a Technical Committee to advise the Government and factories. This Technical Committee was reconstituted with effect from the 1st July 1946, for a period of one year and consists of the following members:—

1. The Director, Imperial Institute of Sugar Technology, Cawnpore.
2. The Cane Commissioner, U.P.
3. The Cane Commissioner, Bihar.
4. Mr. J. Macnivan, Durbhanga Sugar Co. Ltd., Lohat, Durbhanga.
5. Mr. A. Caws, Cawnpore Sugar Works, Ltd., Marhowrah, Saran District.
6. Mr. Kunwar Krishna Chandra, L. H. Sugar Factories & Oil Mills, Ltd., Pilibhit.

The Director, Imperial Institute of Sugar Technology, Cawnpore, will be the *ex-officio* Chairman of the Committee and the Technical Inspector for sugar factories in the United Provinces and Bihar will be *ex-officio* Secretary to this Committee.*

Enquiry into the Present Statement of the Sugar Industry in the U. P. 1945–46

The U. P. Government appointed Mr. K. S. Arnold to enquire into the present state of the industry in the U. P. and to investigate the possibility of

* The same Technical Committee functions for Bihar also.

technical improvement in efficiency. The main points of which this special officer, Mr. Arnold, was to make his enquiries and submit his recommendations to the Government were as follows :—

(*a*) Factories which were badly located from the point of view of supplies of cane, and need to be shifted to some suitable sites.

(*b*) How far it is possible to extend the crushing season.

(*c*) Individual units as to what their economic capacity should be and what improvement would be necessary to make these self-sufficient in the matter of fuel.

(*d*) Additions and replacements required in the plants to make them fully efficient.

The Report was submitted in 1946 to the U. P. Government.

Advisory Committees under the Bihar Sugar Factories Act, 1946

The Government of Bihar have established Advisory Committees for:

(1) Patna Division, (2) District of Saran, (3) District of Champaran, (4) District of Muzaffarpur, and (5) District of Durbhanga-cum-Monghyr.

Temporary Excise Duty on Sugar (Ordinance, 1946)

On the 23rd October, 1946, the Government of India announced an increase in the price of sugar by Rs. 4-4-0 per maund, thus making this price of sugar to be Rs. 20-14-0 per maund (D24 quality) with effect from that date.

At the same time, they announced a temporary additional Excise Duty of Rs. 4-4-0 per maund (to offset the increase in the price of sugar) to be levied on all sugar in factories, or with dealers or retail dealers. This was done, as in 1944, with a view to prevent the factories and stockists from deriving extra profits on their stocks.

BIHAR SUGAR FACTORIES CONTROL (AMENDMENT) ACT, 1946

Compulsory Purchase of Cane through Co-operative Societies

The Bihar Government amended the Bihar Sugar Factories Control Act, 1937 during 1946, whereby provision was made for purchase of cane through the Cane-growers' Co-operative Society in a reserved area. Under this amendment every cane-grower growing cane in each village in a reserved area where there is a Cane-growers' Co-operative Society, of which not less than two-thirds of the cane-growers of that village are members, will have to sell cane to a sugar factory only through the Cane-growers' Co-operative Society of that village. A suitable amendment was made in the Bihar Sugar Factories Control Rules, 1938 (Vide notification No. 2422 dated the 12th August 1946, issued by the Government of Bihar).

Control Over Prices of Khandsari Sugar Withdrawn in 1946

By a notification dated the 20th July 1946, issued by the Sugar Controller, the prices for *khandsari* sugar fixed by him on the 6th February 1946, were cancelled. At the present time, therefore, there is no control over prices of *khandsari* sugar throughout India. The price of *khandsari* sugar, as fixed by the notification dated the 6th February 1946, was Rs. 18–8–0 per maund as against Rs. 16–10–0 per maund for factory sugar (D. 24 quality).

Need for Increase in Price for Safeguarding Manufacturers' Interests

In March 1946, the Sugar Controller increased the price of sugar by 6 annas per maund to cover the increased cost of production of factories. The sugar factories, however, were not satisfied that the increase allowed was sufficient so as to cover fully the increase in the manufacturing costs resulting from shorter duration and lower recoveries. The industry submitted a comprehensive memorandum to the Sugar Controller in May 1946, pointing out that several factories were incurring losses, and urging the Government to increase the profit margin suitably with a view to creating an incentive for increased production of sugar. It also pointed out that the small profit margin allowed also disappeared when all the items of costs were not fully covered, and unforeseen factors like inadequate cane supplies and shortness of season intervened. It was also pointed out that as a consequence the factories were unable to build up any reserves for expenditure on renewals, repairs and re-equipments. Plants were worked to the edge of breakdown and there was a back-log of maintenance and replacements to be made good. It was also urged that the present prices, besides being quite out of proportion to the general price level of the country, allowed a very small profit margin to sugar factories as compared with the profits of other industries, whether protected or unprotected. The industry, therefore, urged for a further increase in the present sugar prices with a view to amelioration of the conditions of the industry.

We also suggest that the Government should adopt a little more liberal attitude when fixing prices of sugar for the ensuing season, namely, 1946–47, and should make proper allowance for expenditure which is to be incurred by factories on renewals, repairs and re-equipment, and for making a suitable profit, in appreciation of the part played by the industry during the war period when it supplied sugar to its maximum capacity without any attempt at profiteering.

None-too-enviable Position of Sugar Companies re: Profits in War-Period

The low prices fixed for sugar and the stringent control measures enforced from the last four years limited the scope and margin of profits in the sugar industry. From a review of the general position and the balance sheets of a number of sugar mills, it will be found that the sugar industry has enjoyed little prosperity even during the war-period. Despite shortages of raw materials, spare

parts, and various difficulties like high labour costs, mills concentrated on increased production but the profits made by them were not large. It must be stated also that unlike other industries, *e.g. cotton, coal, steel*, which have had a prosperous period during the war, the sugar industry has not been able to distribute satisfactory dividends and to build up any reserves for any emergency. This is a very important matter which the Government should remember in any post-war policy affecting this industry. The table on page 72 will show the dividends of a few sugar companies from 1936 to 1945.

Labour Legislation

During the years 1945 and 1946 there was considerable labour legislation. Some of this affects the sugar industry, e.g. the Factories (Amendment) Act, 1946, which limits the total weekly hours of work in the case of seasonal factories, like sugar, from 60 to 50 hours per week, and limits the working hours in any day to 10 as against 11 in the past. These amendments came into force from August 1946. The industry made a representation to the Government of India that in view of the continuous manufacturing process involved in the sugar factories, it was not possible to adjust the shifts to the reduced working hours, and urged the Government to maintain the working hours of seasonal factories to at least 56 hours per week, but was not considered favourably.*

The Minimum Wages Bill, 1946, is now engaging the attention of the Central Government. It seeks to fix the minimum wages payable to workmen under all scheduled employment.

Unrest in Labour in Factories in 1946

During the year 1946 there was a lot of labour unrest in the factories in India generally, and sugar factories, particularly in the U. P. and Bihar, were no exception. Several of these disputes between labour and factories were referred for arbitration to the Labour Commissioner of the U. P., who had to give his award in respect of the various issues raised by labour. While the awards of the Labour Commissioner were accepted and given effect to by the factories, it was pointed out in the award in respect of 4 factories in the U. P. in March 1946, that it was not possible for the industry to give the wages concession asked for by labour due to the fact that the price of sugar was severely controlled and did not leave much margin for increased expenditure, unless the sugar prices were revised. Since the factories were unable to increase the prices of their produce, the Labour Commissioner did not consider it reasonable or just to enforce upon the factories increments

---

* In October, 1946, the Central Government exempted sugar factories from the operation of Section 34. Thus they have been allowed to work for 56 hours per week. They will thus be able to adjust three shifts of eight hours each (Section 34).

No exemption has however yet been given in regard to doubling the ordinary payment for the period beyond 50 hours per week (Section 47).

Capital and Net Block of a few Sugar Companies, and Dividends since 1936

Name of Sugar Factory	Paid-up Capital with Debentures*	Net Block	Dividends %									
			1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
	Rs.	Rs.										
Balarampur ...	28,00,000	23,94,169	10	3¾	2½	Nil	Nil	Nil	Nil	5	5	Nil
*Basti ...	18,00,000	18,94,611	25	15	15	12	5	10	20	30	20	...
Belsund ...	20,49,950	14,47,872	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	...
Belapur ...	37,59,800	36,07,486	16	14	14	20	20	14	12	18	18	16
*Bharat ...	6,25,000	4,91,832	7½	10	5	5	Nil	5	7½	12½	10	...
Buland ...	24,00,000	22,69,814	5	6	11¼	11¼	12½	17½	22½	22½	25	...
*Carew ...	65,00,000	56,14,075	12½	10	10	Nil	Nil	Nil	Nil	12½	10	20
Cawnpore ...	25,00,000	27,66,414	10	5	5	2½	2½	15	15	25	15	15
Champarun ...	18,00,000	19,47,896	20	5	5	7½	2½	15	15	30	20	15
Deccan Sugar and Abkari ...	23,60,000	31,02,528	20	10	10	10	5	10	...	...	...	......
*East India Distilleries & Sugar Factories ...	£314,780	£3,09,055	10	5	10	15	12½	10	...	...	...	......
Durbhanga ...	26,00,000	18,19,829	...	...	...	...	...	12½	10	25	10	......
*Deoria ...	8,99,452	10,33,906	...	...	5	5	Nil	5	7½	...	...	......
Ganesh ...	8,00,000	8,25,407	10	5	5	2½	Nil	12½	...	...	...	......
Ganga ...	8,52,841	9,36,912	...	...	9	18	12	20	20	...	...	......
*Gaya ...	9,84,200	11,27,452	8	8	8	8	8	8	...	8	8	6
*Mahaswastika ...	6,50,000	5,42,176	...	...	Nil	Nil	Nil	...	...	...	...	......
Modi ...	12,00,000	16,22,542	9	10	7	12	12	15	...	...	...	......
*Mysore ...	30,79,280	21,79,280	15	10	15	15	20	20	20	20	20	......
*Nawabganj ...	19,46,030	19,83,186	10	5	11	10	5	12	...	20	15	......
New Savan Sugar ...	11,00,000	8,00,000	10	Nil	Nil	Nil	Nil	10	7½	12½	15	7½
*New India ...	14,12,700	12,68,372	...	...	Nil	Nil	Nil	Nil	Nil	...	...	......
Punjab ...	11,93,642	26,17,247	20	15	15	6	Nil	10	10	10	10	......
Purtabpore ...	15,00,000	16,02,376	7½	Nil	Nil	Nil	Nil	5	Nil	12½	7½	7½
*Ramnugger ...	24,00,000	28,99,038	...	...	Nil	Nil	Nil	Nil	...	...	...	10
Raza ...	15,00,000	20,28,609	10	7½	12½	12½	12½	17½	22½	22½	25	25
*Ryam ...	10,97,400	7,10,917	10	Nil	Nil	Nil	Nil	Nil	5	20	15	10
*Samastipur ...	17,19,000	11,94,577	Nil	Nil	Nil	Nil	Nil	Nil	5	10	7½	3¾
*Shree Sitaram ...	10,95,462	10,20,378	Nil	10	10	...	5	7½	12½	15	...	10
*Sitalpur ...	13,01,310	12,05,659	8	Nil	2½	2½	Nil	Ni	5	6½	6¼	2½
*South Bihar ...	13,25,000	16,79,861	15	15	25	10	9	15	10	...	...	......
*Upper Ganges ...	11,99,900	10,38,095	5	7½	7½	10	Nil	17½	15	15	...	......

* Only those marked with asterisks include Debentures.

of expenditure which were actually not covered by the estimates of expenditure which were allowed for by the Government in the fixation of sugar prices. The Labour Commissioner observed that a minimum wage *plus* dearness allowance of 12 annas per day, or Rs. 22-8-0 per mensem, which was assumed when prices of sugar were increased by Rs. 0-6-0 per maund, was paid by factories. The Labour Commissioner also recommended a minimum basic wage of 8 annas and dearness allowance of 4 annas per day to daily-paid wage earners, or Rs. 22-8-0 minimum wages and dearness allowance to monthly paid employees by all factories. Similarly, in regard to the question of paying a retainer allowance to the seasonal staff when the factories were not working, he made no recommendation. And he also made no recommendation in regard to the question as to whether any of the four factories concerned should pay their employees any bonus as share of profits earned on the working of the year 1944-45.

Central Control of the Sugar Industry—U. P. Government's Views thereon

In April 1945, the Government of India issued a statement of industrial policy wherein sugar and power alcohol were included in the list of industries which were to be *centralised.* The Government of the U. P. submitted a memorandum in 1946 taking exception to certain observations made in the Government of India's statement. For instance, it pointed out that the growth of the sugar industry in this province has not been fortuitous, but it is due to the fact that the Gangetic Valley is most suitable in India for the cultivation of sugarcane. It was also pointed out that the concentration of the industry in the U.P. and Bihar had not in the least given rise to "strategic or social difficulties" for the factories were widely scattered over the whole cane-producing area, etc. The Government of U.P. stated that they were not against some form of control. In fact they apprehended that if the industry was left entirely unregulated, it may result in the U.P. and Bihar being unable to find a market in other provinces, which would not only be prejudicial to the existing factories—but what was more—would also adversely affect the cultivating classes. They, therefore, recommended some form of central control. It pointed out, however, that central control merely through the assumption of powers for licensing factories would not meet the objective, and expressed the view that such powers of internal control of the industry should be left to the provinces. It urged that central control should be confined to:

(1) Allocation of production quotas to the various Provinces and States on the basis of the demand and of their existing production capacities.

(2) Creation of a statutory all-India marketing organisation with necessary state control over such organisation.

With the assumption of office by the National Government at the centre, with effect from September 1946, this question will doubtless receive further consideration. The report of the Sugar Panel, as also the recommendations of the various Provincial Governments will also receive careful attention before

the Government of India formulate their final policy in regard to the development of the Industry in the future.

Sugar Industry—A Big National Asset

During war-time, there was some increase in the production of sugar in India and the sugar industry was able to stand the storms and stresses of an exacting World-War. The abnormal demands made on it with a short notice for preparation and full equipment were successfully met for the most part and the industry played a significant role in the war effort and in the civilian economy. Despite the hard and long hours of work by the mills in the cane-crushing season with practically no replacements for the past five years and absence of regular and adequate supply of raw materials, like sulphur, coal etc., the industry has acquitted itself creditably, and has served the public well by producing maximum quantities of sugar, which was unavailable from anywhere else, subject to the limitations of transport, raw materials, etc. The emergence of the Indian sugar industry through the war in a conspicuous major position is an event of world-wide importance. The Indian Sugar Industry furnishes a magnificent example of the success of the policy of protection,* and given proper care and attention, it will play a still more important role in the agricultural economy of the country, by a steady and well-dispersed expansion, which we consider, is indispensable, looking to the necessity of a larger production of energising foods like sugar to meet the requirements of improved standards of living and nutrition which are expected to follow in the years to come, particularly as a result of the advent of the new National Government installed at the centre, charged with the interest of promoting the welfare and well-being of the 400 millions of India.

**Vide* Mr. M. P. Gandhi's "Problems of Sugar Industry in India—Scope and Prospects of Re-organisation," with a foreword by Sir Purshotamdas Thakurdas, page 425, December 1945, Price Rs. 12.

PART II

PRESENT PROBLEMS BEFORE THE SUGAR INDUSTRY AND SCOPE OF ITS DEVELOPMENT IN FUTURE

Imperative need for Reorganisation of the Industry

The most important question appertaining to the sugar industry at the present time is doubtless one of effecting an improvement in the cane cultivation to the maximum extent. A close study of the agricultural conditions in India will indicate firstly that India is largely a country of small cultivators who follow the immemorial and traditional way of life. Agriculture in India cannot be considered as an independent entity. Its development is part of the larger problem of rural development which must be tackled as a whole. For instance, it is interdependent with the Industry, a sound expansion of which is idispensable to any comprehensive programme for the advancement of agriculture. Further it must also be noted that in view of the wide diversities in India of climates and soils and of cultivation practices under irrigated and rainfed conditions, the Provinces and States concerned will have to evolve a detailed plan suited to their areas and their conditions. The two objectives which will have to be kept prominently in view in any scheme of agricultural development in India will be (1) abolition of the poverty of the cultivator, and (2) abolition of the poverty of the soil. For achieving these objectives, various kinds of wastes which exist at present, such as waste of fertilising material, water, soil, etc. will have to be cut out, and these sources will have to be utilised to the maximum capacity.

Apart from the inadequacy of food in India, which has resulted in 30 per cent of the population of India, or over 100 millions of the people, being underfed in normal times, the quality of the food consumed is even unsatisfactory and unbalanced. To achieve national sufficiency in human foodstuffs, therefore, it will be necessary to have minimum targets of increased production in order to provide the Nutrition-Experts' requirements for a suitably balanced diet in a minimum quantity, for the 400 millions of this country.

Grievously Low Level of Production from Land

Another grim fact of the conditions in India is that due to a variety of reasons the level of average production per acre is low in the case of most crops, sugarcane included. Four-fifths of the total cultivated area are depending purely on rainfall for the success of their crops. In much of the area rainfall is precarious or badly distributed. The cultivator himself, by reason of neglect or ignorance, fails to make the best use of his land and the rainfall, or even of the irrigation facilities where they are available. He manures his crops inadequately and in most cases not at all. A bulk of the cultivators still do not use the most improved and best varieties of seeds. The standard of cultivation is low. Pests and diseases of crops

are allowed to go unchecked. Weeds flourish uncontrolled and in sloping lands the soil is eroded and carried away through failure to control rainfall and surface by bunding and other means. These are some of the directions, by proper attention to which the cultivator of cane as of other crops can directly increase production from his land.

Utilisation of Water Resources

To augment the purchasing power of the cultivators, the first necessity is to ensure the optimum utilisation of national assets and their maximum exploitation by all means known to science and technology. Maximum use will have to be made of every source of water supply by harnessing the water of rivers, construction of irrigation canals, lifting of water by mechanical means, construction of minor irrigation works, proper utilisation of rain water by control of erosion, etc. It has been stated on good authority that the maximum utilisation of all sources of water would increase production by ·50 per cent.

Better Utilisation of Land Needed

Similarly, land will have also to be utilised to the maximum advantage and a major aspect of maximum land utilisation essentially concerns the cultivator himself and consists in the attainment of higher crop yields by improved methods of husbandry, such as manuring, use of better seed, improvement of agricultural practices and control of pests and diseases. Proper manuring has produced in the rice crop increased yields per acre varying from 20% to 150%, and taking India as a whole, an average increase of 30% should be well within practical achievement, in respect of all crops.

Improvement in Manuring and seeds

An all-out programme of manuring, which must include all forms of manure and utilisation in a much larger proportion of farmyard manure than the 40% which now finds its way to the land (40% being used up as fuel, and 20% being lost due to difficulties in collection), will be necessary, by the provision of adequate supplies of alternative fuel, such as wood, coal, or oil. Green manuring must be practised particularly on the irrigated crops. Artificial fertilisers, particularly Sulphate of Ammonia, must be made available in large quantities at cheap rates, to meet the deficiency of nitrogenous fertilisers. By the use of improved varieties of seed, increased yields per acre of 10% to 15% can be obtained.

Protection from Pests and Diseases

An adequate protection to crops in the field from the ravages of pests and disease would probably increase production by 5% on the average. Consolidated holdings will lead to increased production.

Guarantee for Minimum Price of Produce would be Helpful

It will be necessary, however, to provide the stimulus essential for increasing production to the cultivator and this can be done by guaranteeing to him minimum

prices for his produce as was done during the war period in India in the case of wheat, millets and cotton.

Development Plan suggested by Advisory Board of Imperial Council, 1944.

In a memorandum on the Development of Agriculture and Animal Husbandry in India, prepared by the Advisory Board of the Imperial Council of Agricultural Research, published in 1944, it is stated that if the necessary stimulus for continuous effort on the part of the cultivator is assured and the necessary finance provided for development of agriculture, it seems reasonable to conclude that an increase of 50% in production within 10 years should be possible of attainment, and still further improvement can also be envisaged. It was also estimated that the development of the skeleton plan contemplated in that Report would involve a recurring expenditure of the order of Rs. 25 crores a year, out of which Rs. 3 crores would fall on the Centre and about Rs. 22 crores on the Provinces. Considered in relation to the area involved, an annual expenditure of Rs. 25 crores represents an average of less than Re. 1 per acre on the present cultivated area of British India, the share of the Centre and Provinces being about 2 annas and 14 annas per acre respectively. We commend the plan for the careful consideration of the Provincial Governments for improving agriculture generally, and hope that in view of the immediate necessity of increasing production of various food crops in India, action will be taken with the minimum of delay.

Peculiarities of Sugar-cane growth in India

In regard to sugarcane, it is well known that it is grown throughout India. There are two distinct belts, (*a*) the Indo-Gangetic alluvium in the North, which grow mostly *thin* cane, and (*b*) the peninsula in the South, where thick canes are the chief type. The peninsula is warm in the winter months and there is no severe check to the crop. Sugarcane can be planted throughout the year. In the northern belt, though the soil is perhaps on the whole more fertile, the crop is subject to extreme heat and cold.

The progress in the improvement of sugarcane cultivation is possible in (1) spread of improved canes over the whole sugarcane area (this has mostly been done—90% being under improved varieties now), (2) selection of varieties resistant to pests and diseases, and (3) substitution of varieties that are still better in performance than the ones now in use, particularly selection of such as are more efficient in the use of manure, i.e. which, given the advantage of manurial nutrients, produce a larger quantity of cane.

Manuring of Sugarcane

In regard to manuring, the following facts are noteworthy:—

(1) Nitrogenous manure every year is a necessity for sugarcane throughout India.

(2) Phosphatic manure is necessary in a few places.

(3) Pottassic manure is required in still fewer places.

Once applied, Phosphatic and Pottassic manures continue to have the effect for a number of years.

There has been experimentation regarding optimum dose of nitrogen per acre. It appears, however, that the optimum dosage is not the same throughout in India, and that it is lower in the Indo-Gangetic alluvium than in the Peninsula. This may be due to differences in climatic conditions and soil and in varieties of cane grown.

In his report on the Technological Possibilities of Agricultural Development in India, 1940, Dr. Burns states that it is possible to increase the average yield of sugarcane throughout India considerably, and gives the following table which indicates the yield of cane which should not be difficult to obtain in India.

Area	*Potential average yield of cane*
	Tons.
North-West Frontier Province ...	30 to 35
Punjab	40 to 45
United Provinces	27 to 35
Bihar	25 to 35
Bengal	35 to 40
Madras	45 to 55
Bombay, Mysore	45 to 55 for plant cane; 70 to 80 for adsali

The actual extreme yield of cane which it is possible to obtain anywhere in the world is theoretically 192 tons per acre and this has been approached in Hawaii with an yield of 185 tons. In India over 100 tons were actually obtained on three of the competing farms in Bombay-Deccan in 1934.

Main Problem of reducing Cost of Sugar and Sugarcane

Having given a general background of the agricultural conditions in India appertaining to the various crops, we will refer in the succeeding pages briefly to the various practical directions in which cultivation of cane can be improved and cost of production of cane reduced with a view to ensuring production of cheap sugar and *gur* and in increased quantities to meet our enhanced requirements in the years to come. We are convinced that the need for consolidation and reorganisation of the industry is vital at the present time as the war in Europe has now ended and it is possible to embark upon plans for augmentation of sugar production, both for meeting the internal demands and for export to the neighbouring countries. We venture to suggest that it might become necessary for India to take its due share in export of sugar to the other countries of the world, and this would be easy if the industry is consolidated and reorganised on modern lines and the cost of production of sugarcane and sugar is suitably reduced by embarking upon short-term as also long-term plans of comprehensive research in cane cultivation all over the country.

In the previous *Annuals*, we had referred to the vicissitudes of the sugar industry in the early stages of its development for over a decade and expressed the opinion that with the advent of the World War II, the Indian Sugar Industry had left behind its worst period of trials and tribulations. By its magnificent contribution during the war-period to the large demands for sugar both on the military and civilian accounts, it showed its remarkable powers of adjustability and resourcefulness to meet such increased demands occasioned by the outbreak of war. By such an enormous contribution to the Allied cause, it has also won recognition worthy of its past record and entitled itself to a special consideration in the years to come when plans for its further development will be in the making.

The immediate need of the hour is the replacement of the over-worked and worn-out parts in machinery and equipment by regulated imports of the urgently needed mill-stores, machinery, and other requisites for the uninterrupted and effective working in the future period. Necessary priorities for imports of new machinery and mill-stores should be granted by the authorities and every assistance, technical or otherwise, should be made availabe to the industry in this respect. The recently constituted Indian Central Sugarcane Committee, we trust, will be able to take suitable steps to place the industry on a very sound footing by tackling the main problems of consolidation and re-organisation now facing the industry. Improvements in the methods of cane cultivation, introduction of new as also early and late ripening varieties of cane in the gate-areas of the mills to make cane available continuously for a longer crushing season, increased transport facilities, and improved technical efficiency will result in an increase in the recovery percentage and output of sugar. By-product industries have also to be fully developed to enable cheap production of sugar. Power alcohol production from molasses should be developed immediately. Above all, there should be a co-ordinated all-India policy for development and extension of the sugar industry. The Provincial and State Governments have necessarily to play an important role in the evolution and working of such a co-ordinated and single all-India policy as regards sugar. The concentration of the sugar industry in the U.P. & Bihar created a bottleneck in the war period owing to the lack of transport facilities. The only means of overcoming transport difficulties and high costs of freight as well as the evils of over-concentration of mills in any particular area, are positive encouragement to set up more mills in Bombay, Bengal, Madras and other Provinces which are sugar deficit areas. Proper planning and development on natural and advantageous lines are the main problems of the sugar industry. The Sugar Panel's Report will be useful in this direction.

Sugarcane—Necessity of Improvement in Cultivation, and in Yield per Acre.

The general conditions of sugar manufacture in India are peculiar and have hardly any parallel elsewhere. Mills in India, except in Bombay Presidency, do not generally produce the raw material, viz., the cane as they do in Java and other

countries from their own extensive plantations round about the factories but they depend on a large number of agriculturists with small holdings of land independent of each other and working without any definite system, industrious but lacking in capital, in resources and in scientific knowledge and consequently incapable, in the absence of any guidance either from the Government Departments or from the factory owners, of making use of modern, up-to-date and efficient methods of cane-cultivation, crop-rotation, manuring, etc. This is a very important factor which has to be borne in mind constantly in a study of the problems of sugarcane and of agricultural improvements in India. In devising various methods for improved cultivation of sugarcane varieties, care should be taken to see that the small cultivators do really understand and practice the methods and actually benefit by them. Improvements in the cultivation of cane should be planned, with a view to bring down the cost of cultivation, and to cheapen supplies of cane to factories.

Extension of Cane Area or Improvement?

A glance at the recent statistics of the area under cane cultivation in relation to the requirements of sugar and *gur* in India will indicate that the area under cane has shown a considerable fall during the last 3 years due to the effects of the "Grow More Food" campaign of the Government of India, and the fixation of lower minimum prices for cane, the returns from which were not as remunerative as from other crops. Even so, the present acreage under cane, namely, 38,47,000 acres in 1945–46 (which is just about 2 per cent of the total cultivable area in India and approximately 34 per cent of the sugarcane area in the world) is sufficient for giving us the quantity of sugar that we need in the country for our internal consumption, now and for some time to come. It does not appear to us necessary to increase the acreage under cane, but it is of vital importance that the yield per acre should be improved with a view to lowering the cost of cultivation.

Encouragement of High Sucrose Cane or Heavy Yielding Varieties?

An important question affecting the sugar industry and the agricultural economy of the cane-grower in India at the present time has arisen, namely, whether cultivators should be encouraged to grow only such canes as possess high sucrose but are moderate in yield of cane per acre, or whether they should be encouraged to cultivate heavy yielding varieties even though they may be only moderate in sucrose content.*

It is necessary to remember that high yield of cane and high sucrose seldom go together and generally speaking, heavy yielding varieties which are now being cultivated by growers happen to be more satisfactory agriculturally as compared with high sucrose early varieties now available in the country. This is a vital question in view of the fact that in certain tracts no choice is being left with the

* This question has been discussed in detail in the "Report on the Survey of Sugarcane Research in India" by Mr. N. L. Dutt, M.Sc., prepared for the Imperial Council of Agricultural Research in 1946.

cane-grower but to cultivate rather low yielding varieties because they have high sucrose, while in other tracts high yielding varieties are being encouraged in spite of their possessing rather poor sucrose. After a careful consideration of the entire question we are inclined to the view that as in other progressive cane-growing countries, *our goal should be to get more sugar per acre in the larger interests of the country.* It is well known that the minimum price of cane being fixed in India at a flat rate, the cane-grower suffers a lot in his income if the cane which he grows is a low yielder, e.g., Co. 313 in North Bihar, and he gets no premium for the growth of cane of high sucrose, which is generally poorer in yield. In Hawaii, more attention is paid to increase in yield of cane in order to get more sugar per acre, and during the last 15 years the yield of sugar per acre has gone up in Hawaii from 4.25 tons per acre by increasing the cane yields per acre, to 6.49 tons of sugar in 1936-37, in spite of a fall in recovery from 11.77% to 10.46%, due to the lower sucrose content of cane, between 1922-23, and 1936-37.

Queensland, on the other hand, concentrates more on the increase of quality in order to get more sugar per acre. A comparison of the relative advantages derived from the above two methods of approach in Hawaii and Queensland is interesting. Hawaii concentrated on improvement in the yield of cane and got an increase of 53 per cent in total sugar per acre, while Queensland concentrated on improvement of the recovery and got an increase of only 23 per cent in total sugar per acre, (2.44 tons of sugar per acre in 1924, as compared with 3.10 tons of sugar per acre in 1938 in Queensland). Apart from the obvious advantages of depending upon an increase in the yield of cane as a means of increasing the total sugar per acre, it might be said that there is a limit to the increase in the quality of cane, as also in the increase in the technical efficiency of factories. An increase in yield doubtless has its limits too, but as we observed last year in our *Annual* (*vide* p. 74 of 1944 *Annual*), there are great potentialities of increase in the yield of cane per acre in India, from 15 tons to 30-55 tons per acre in India. That is not to say that our quality of cane does not need improvement. It does, and very much. It would appear, however, that to achieve our aim of getting more sugar per acre, it would be more profitable to concentrate on improving the yield of cane per acre which admits of great possibilities, without sacrificing the quality of cane. The example of Hawaii, it seems to us, is well worth emulating. It is well known that the average growth of cane in India was only about 10 tons per acre before the advent of the Co. cane in 1918. With the spread of the Co. cane the yield has increased by about 50 per cent i.e., from 10 to 15 tons per acre. The yield of cane in India, however, is yet very low as compared with Egypt and South Africa; (and Java of course). These two former countries, which, like India (i.e. for over 80% of its cane area), are situated outside the tropics, grow the thin-medium canes. In 1936-37, the yield of cane per acre in Egypt was 30 tons, in South Africa 22 tons, while in India it was 14 tons. In 1936-37 the yield of sugar per acre in Egypt was 3.0 tons, in South Africa 2.43 tons, while in India, it

was 1.39 tons, *just about the lowest of all countries in the world.* The maximum yield of cane per acre in Java was 56 tons, and the yield of sugar per acre, 6.44 tons, in 1936–37. It must also be remembered that the quality of cane in India is about the lowest as compared to the other countries.

Should Cane Prices be fixed on Weight, or should they vary according to Varieties and Sucrose Contents ?

So far the universal system adopted for payment of cane in India has been of payment at a flat rate per maund or ton, irrespective of the sucrose content of the cane, and the period of the season in which the cane is offered for supply. The Provincial Governments and the States which have fixed prices of cane, have done so on a flat basis, and the cane-growers have not had any premium given to them for supply of cane of higher sucrose content. Nor has any deduction been made for supply of cane of very low sucrose content. The interest of the factory of course lies in getting the maximum sugar out of a ton of cane, while the interest of the ryot lies in getting the maximum tonnage per acre of land. The result is that with the heavy yielding cane of low sucrose, the factory loses and the grower gains, while with the high sucrose cane, which is usually a moderate yielder, the position regarding profits is the reverse. *It is obvious, therefore, that there is a clash of interest between the grower and the factory-owner in India because cane is paid according to weight and not on sucrose basis, as is done in almost all the cane-growing countries.* The interests of both parties, we suggest, should be reconciled in the larger interests of the country. The whole basis should be more sugar per acre as suggested before. If the industry is to thrive, a prolongation of the crushing season is absolutely essential and instead of the factories working 80–90 or 100 days in a season, they should be able to work at least 150 days in a year, in which case there should be sufficient supply of early maturing cane to enable factories to start crushing early, and late maturing cane, to enable them to work till late in the season. It is well known that early maturing canes are often low yielders, as a result of which the cane-grower is disinclined to cultivate them for fear of a poor overall return from his crop. It seems also true that the stage has not yet been reached in India when payment of cane can be universally made on sucrose basis, due to the astoundingly large number of small cultivators with whom factories have to deal, as also their illiteracy. At the same time it is easy to see that the cultivator would not be averse to take up the growing of high sucrose cane in preference to low yielding varieties, if he is paid a premium over the average rate fixed for cane, for such superior varieties. Some incentive should be afforded to him to grow low yielding cane, with a higher sucrose. High yielding cane ripens actually towards the middle of the season, that is, January-February, with the result that when this cane is crushed in November-December, it gives a low recovery because of lack of maturity. It seems, therefore, desirable in the larger national interests of the country to consider the practicability of the adoption at an early date, of a system of fixation

of cane prices, according to varieties of cane and the month in which they are offered, irrespective of the difficulties that are inherent in its adoption at present. This point has been discussed in great detail by Mr. N. L. Dutt in his Report referred to in the preceding paragraphs, and we invite the immediate attention of the various Provincial Governments and the Indian Central Sugarcane Committee to this important aspect of the question in order that the industry in the country may thrive as a result of a more advantageous utilisation of the cane crop in its optimum state all throughout the season.

Principal Agricultural Problems of the Industry

We will now discuss the principal agricultural problems of the industry in India at the present time. These are (1) increase of yield of cane per acre, (2) improvement in the quality of cane, and (3) reduction in the cost of cultivation of cane. The first point that naturally crops up in regard to any consideration of the question of increasing the yield of cane per acre is whether we can ever aspire in India to reach the yields of cane obtainable in Hawaii or Java. In this context it should be noted that Hawaii and Java are situated in the tropical belt, while 85% of the cane-growing tract in India is in the sub-tropical region, and this is no mean handicap of nature. Apart from the climatic limitations, there are other serious handicaps peculiar to this country, e.g. the prevailing system of land tenure, the fragmented and uneconomic holdings of land, illiteracy of the cultivators, uncertainty of rainfall, lack of proper irrigation facilities over a large part of the cane area, insufficiency of manure, lack of knowledge of crop rotation, etc. At the same time we are aware that with adequate irrigation facilities and supply of plentiful manure of suitable variety, yields of 60 tons and more have been obtained in the sub-tropical belt of Northern India by certain Government Research Stations and also by certain progressive cane-growers. In Bombay, for instance, in 1935–36 yields of cane of over 100 tons per acre were obtained when a competition was organised. It does not seem to be unlikely that if a generous provision is made for research work and if cane development is organised on sound lines, an average yield of about 800 maunds per acre can be obtained over the whole of the U.P., Punjab and Bengal (as against 350 to 400 maunds per acre at present). The average yield in Bihar, which is mostly a rain-fed area, can also be increased to about 600 maunds per acre, while in tropical India the yield can be increased to 1,100 maunds per acre. If such development is vigorously continued, it will be possible to get higher yields still during the next decade.

In accordance with the expectation of Mr. N. L. Dutt, who has done considerable research work on sugarcane in Coimbatore under the guidance of Sir T. S. Venkataraman, the reputed scientist who has revolutionised the sugarcane industry of the country by the wonderful improvements made in respect of the quality of cane, it should not be impossible to obtain an yield of 1,100 maunds per acre in the sub-tropical areas and 1,400 maunds per acre in the tropical areas. This shows what progress has yet to be achieved.

Dr. Burns' Target for Cane Yield—50 tons per acre

In his Report on the "Technical Possibilities of Agricultural Development in India", published in 1941, Dr. Burns, formerly Agricultural Commissioner to the Government of India, examined the question of improvement of the yields of various agricultural commodities. In so far as growth of cane was concerned, he also expressed the opinion that it could be increased from the present average of 15 tons to 30–55 tons per acre by the employment of available resources in the most useful way. The methods suggested for reaching the increased target were better manures, improved varieties of seeds and implements, control of crop rotation, more scientific cultivation and maximum utilisation of available fertilisers, water, labour, soil and livestock.

Variation in Prices of Different Qualities of Cane suggested

In regard to the second point, namely, improvement in the quality of cane, it is necessary to ensure that the sucrose content of cane is fairly uniform throughout the crushing season, and not very low at the beginning and towards the end of the season, as is the case at present. The ratoons and early varieties will generally need to be crushed in the early part of the season. The suggestion made for offering normal prices for these varieties, and for offering much lower prices for the mid-season cane in order to dissuade cultivators from offering unripe mid-season cane in the early part of the crushing season deserves serious consideration of the Provincial Governments. From January onwards normal prices should be offered for the mid-season varieties, and in order to induce the cultivators for keeping late crushing cane in the fields for crushing towards the end of the season, a slightly higher price may be offered.

Increase in Yield of Tonnage and Cheapening Cost by Manuring, Ratooning, etc.

In regard to the third point, namely, reduction of the cost of cultivation, it should be noted that any improvement in the yield of tonnage of cane will certainly bring about a fall in the cost of production. Other methods suggested for consideration are: (1) Manual labour now largely in use for the entire agricultural operations should be substituted by labour-saving implements drawn by bullocks, (2) manures should be supplied at the proper time and in proper proportion to increase their efficiency, and (3) perhaps the most important way in which the cost of cultivation could be reduced is by resorting to the practice of *ratooning* and it has been seriously recommended that the research stations should devote greater attention to this aspect of the question in the years to come.

Increase in Cane Acreage not necessary—Palm Sugar Possibilities should be Explored.

We would also invite the attention of the readers to the observations made by Mr. N. L. Dutt in his report referred to above, wherein he has recommended areas where sugarcane cultivation can be encouraged advantageously. After considering

the various regions, namely, the U. P. and Bihar, Punjab, Bengal, N.-W. F. P., Bombay, Madras, etc. wherein there are more possibilities of encouraging sugarcane cultivation in some areas, he comes to the conclusion that as the average yields per acre in India are still very low, a great scope exists for the improvement of yield before thinking of increasing the area under cane in any tract. As we observed before, we feel that it will be possible for India to produce all the sugar it needs from its present crop if it is properly utilised, by progressive expansion in the yield and quality of cane, and it may not be necessary to increase the area under cane, which can safely be left for the cultivation of food-crops of which a very serious shortage has been noticed in the country of late. Indeed, if the yield per acre is raised appreciably and before long, and if the palm-trees* in the country are tapped for making sugar, it seems to us that it would also be possible to release some of the present land under cane for the growth of food-crops. We suggest an early investigation into this problem.

Diseases in Cane and Pests must be eradicated

In order to improve the yield as well as the quality of sugarcane it is imperative to eradicate the diseases in cane and pests. It is a matter of common knowledge that in respect of yield of cane per acre, its sucrose-content or average percentage of recovery of sugar from cane, we in India are still behind many other sugar producing countries, viz. Java, Cuba, Hawaii and the Philippines. Unless we are able in a short time to effect considerable improvements in this direction, with the aid of organised research, it will not be possible for us to stand the vigorous competition of other advanced sugar producing countries in the years to come. Whether it is due to plantation of cane without a scientific system of rotation of the cane crop, absence of fertilisers and manure, lack of plentiful water supply either through irrigational canals or tube-wells, and diseases and pests—or a combination of any of the above factors—the fact is that our cane crop at present is poor both in respect of quality and yield per acre. *The direct consequences of this are high cost of production of cane, low yield and sucrose content of cane, and a great recurring national loss, valued at millions of rupees to the agricultural community in the country.*

Great damage is occasionally done by insect pests and diseases in various Provinces.** The sugarcane crop is easily susceptible to diseases. In some years the harm caused by pests and crop diseases is so widespread that it materially alters the fortunes of the cultivators and results in considerable reduction in output of sugar and yield of recovery percentage. This should be avoided as far as possible, by cultivating proper cane, and by organised research to combat these pests.

*Vide Appendix III to "Problems of Sugar Industry in India" by M. P. Gandhi, with a foreword by Sir Purshotamdas Thakurdas, 1946; 425 pages, for details in regard to this matter.

**Red Rot disease of sugarcane has appeared in the U.P. in epidemic form in 1946-47.

Education of Cultivators by Demonstration of Improved Methods.

Apart from tackling by special means the problem of pests and diseases, there is a great necessity of undertaking other measures which would bring home to the cultivator the desirability of effecting improvements in the conditions of cultivation of cane. The average cultivator in India is hardly aware of the latest improved methods of cultivation or manuring or rotation of crops, or selection of suitable varieties to the soil, and the introduction of cross-breeding and hybridisation. He carries on in the traditional style from year to year unmindful of the revolutionary developments in other lands and unaware of the possibilities of improving his lot. Industrious but having no capital and implements, he works hard but the results have been poor compared with other countries. Improvement in quality of cane grown on the fields and reduction in the costs of cane cultivation are two important problems that face the agriculturist, the Government and the industry at present. In view of its importance it is the duty of the Government to devise suitable means of imparting instruction in modern methods of cultivation to the ryot and to make available to him the fruits of organised research with a view to improve his economic condition, and to establish the industry on a sound and firm basis. Although is is satisfactory to note the work done in this connection by the Sugarcane Research Stations at Coimbatore, Shahjahanpur, Muzaffarnagar, Karnal, Padegaon in the Deccan Canal area, Pusa, Dacca, Bangalore, Hyderabad and many other places and although improvements have been effected in quality of cane grown in various Provinces, we feel that the time has definitely come when we should redouble our efforts to establish more intimate contact with the cane-cultivator and to initiate him into modern methods of better farming by actual demonstration. For this purpose it is essential to establish a series of demonstration farms and nurseries in all cane-growing Provinces and Districts in order that they may devote their attention to the propagation of cane of higher tonnage of cane per acre, of early and late-ripening varieties for extending the cane-crushing season, of increasing the yields by suitable crop-rotation, provision of a suitable supply of water for the crop, early detection and eradication of crop pests, etc. These demonstration farms and centres should serve as the arteries from where trained agriculturists would tour round the surrounding districts in order to show or demonstrate efficient methods of cultivation and manuring suitable to the soil in the various places and would also distribute good and improved seed amongst the cultivators. An important function of these farms would be to conduct researches as to the easy methods of combating cane diseases and pests. In addition to this, the Provincial Governments should also undertake other allied work of effecting improvement by educating the ryot in the use of irrigation water, by extension of the canal system and by affording necessary assistance in tapping subterranean sources of supply of water, by offering supply of manure for his impoverished land, etc.

Improvements in Cane Crop Essential

The immediate necessities for the cane crop of India are (1) improvements aimed at lowering the cost of cultivation by increasing the tonnage per acre which

in turn will give a better return to the cultivator, and (2) raising the quality e.g. by producing varieties suited to various localities, having higher sucrose-content and greater resistance to diseases and pests so that they may command higher price from the sugar manufacturers.* The work of improvement on an organised scale should be undertaken in areas adjoining the sugar mills and such area gradually extended. The development of reserved and gate-areas of the sugar mills are likely to give immediate benefit both to the manufacturer and to the cane-grower. The ultimate success of the sugar industry hinges upon its ability to produce better and higher yields of sugarcane per acre since sugarcane forms the raw material of the industry and accounts for over 52 per cent of the cost of production. Improvements achieved in this field will be of lasting value and result in the cheapening of the prices of sugar. The extension of the present cane-crushing season of about 4 months to at least 6 to 7 months in the year by encouraging and promoting the growth of early and late ripening varieties of cane suited to the climatic conditions of the various areas of production, will be of considerable help.

Valuable Educational Effect of Cane-crop

Although the total area under cane is now less than 4 million acres, out of 277 million acres cultivated in India, the importance of the sugarcane crop is out of all proportion to the small area which it occupies. It has a valuable educational effect on the cultivator.

Sir John Russell, in his Report on the work of the Imperial Council of Agricultural Research, in applying science to crop-production in India (1937), observed as follows: "The cultivator learns the advantages of modern varieties of crops, or fertilisers, of proper cultivation; the need to watch for plant diseases and to seek advice when he is in difficulties. The Agricultural Officer will have more chance of coming in touch with the sugarcane grower than he will with an ordinary small cultivator."

Imperial Council's Valuable Work for Sugar Industry taken up by the Indian Central Sugarcane Committee from 1944

The Imperial Council of Agricultural Research has done very valuable work in the field of development of the sugarcane crop. The programme of the Imperial Council's work was (*a*) the selection of canes better suited to the important cane-growing districts than the existing local varieties, and improvement of their cultivation, (*b*) improvement of local methods of making *gur*, and (*c*) development of advisory and research services for the factories. Investigations on cane breeding were made with considerable success at Coimbatore by Sir. T. S. Venkataraman, and since his retirement in 1943, this work is being carried on by Mr. N. L. Dutt who is in charge of the Coimbatore Research Station. Mr. Dutt's Report on the Survey of Sugarcane Research, 1946, to which we have made a

*It is a pity that yet no suitable method has been evolved whereby the cultivator of superior quality of cane would get a premium, over the fixed minimum price of cane.

reference elsewhere, is well worth a detailed study in view of the excellent suggestions made therein in regard to various matters appertaining to the development of cane.

The work of the Imperial Council, in so far as it appertains to sugar and sugarcane, has been taken over by the Indian Central Sugarcane Committee, established in 1944. For its functions, personnel, etc. we would invite a reference to page xxvii of the earlier portion of this *Annual* entitled "Indian Sugar Industry at a Glance". A reference is also made to this matter in part I of the *Annual*, and the paragraphs below give a resume of the Committee's work from November 1944 to 31st March 1946.

Resume of Work of the Indian Central Sugarcane Committee from November 1944 to 31st March 1946

We give below a Resume of work of the Indian Central Sugarcane Committee from November, 1944 to 31st March, 1946 :—

The Indian Central Sugarcane Committee started functioning from November, 1944 and held its Inaugural and First Meeting at New Delhi in that month. The Committee undertook the work for the improvement and development of the growth, marketing and manufacture of sugarcane and its products. The committee also undertook to initiate agricultural, technological and Economic Research on sugarcane, production, distribution and testing of varieties of sugarcane, *Gur*, Sugar and their bye-products, the improvement of crop forecast and Statistics and adoption of improved cultural practices.

2. In order to achieve these ends, the Committee appointed several Sub-Committees of its own, namely, Finance, Local, Technological, Agricultural Research, Sugar Standards, *Gur* and *Khandsari*, Scientific and Technological appointments and *Ad Hoc* Planning. The main committee with the help of its Sub-Committees is at full grips with all the aspects of Sugar and Sugarcane.

3. The Imperial Institute of Sugar Technology, Cawnpore, has also been taken over by the Indian Central Sugarcane Committee from the Imperial Council of Agricultural Research. The Committee is now considering to establish its own Technological Institute combined with an Agricultural Research Station. The Site Selection Committee of the Indian Central Sugarcane Committee is visiting different sites for location of the Technological Institute-cum-Research Station.

4. The Government of India finances the Committee by placing at its disposal funds at the rate of one anna per cwt. of white sugar produced in British India out of the Excise duty levied on it. In addition the Government of India placed last year a special grant of Rs. 125 lakhs (out of proceeds of the Temporary Additional Excise Duty on sugar) at the disposal of the Indian Central Sugarcane Committee for the development of Sugarcane Industry. Provinces and States were asked to submit 5 year Development Schemes for the consideration of the Committee. The Development work will consist of establishment of seed nurseries and

provision for (a) manures of the right type, (b) qualified technical personnel to carry the results of research to sugarcane growers, (c) an efficient Watch and Ward Service for protection of crop against pests and diseases, and (d) a Soil Extension Service to advise Sugarcane growers. The *Ad Hoc* Planning Sub-Committee and the Main Committee have since considered the Development Schemes submitted by the Provinces and States and the Committee has sent its recommendations to the Government of India for approval.

5. Along with other Research Schemes, the Committee has also decided to finance a five-year scheme dealing with an expedition to collect wild forms of *Saccharum Spontaneum*. The discovery that cultivated canes could be crossed with this wild grass and the subsequent production in this way of the well-known Coimbatore varieties have revolutionised Sugarcane growing and manufacturing industry in the country during the last quarter of a century. The Committee felt that the possibilities in this connection had not yet been exhausted and the potentialities of the fresh material which this expedition would provide would be of great value which could be determined at the Central Sugarcane Breeding Station, Coimbatore.

6. A Crop weather Scheme has also been sanctioned by the Committee to take up long term research on the correlation between climatic factors and sugarcane growth and yield to be conducted under the India Meteorological Department.

Improvement in Yield Possible in India

In spite of all the difficulties and handicaps peculiar to the Sugar Industry in India, there is no doubt that a good deal of improvement in yield per acre of sugarcane can be effected. The results at the Indian Research Stations are encouraging and from experiments at various places on factory farms, we find that higher yields have been obtained. Experiments conducted in the Deccan Canal areas and at Coimbatore and other places have also shown encouraging results. For instance, on the Ravalgaon Sugar Factory 50.5 tons of sugarcane per acre were produced compared with the 41.4 tons per acre by adopting only small improvements in cultivation, manuring and fighting the diseases. In a competition organised by the Maharashtra Chamber of Commerce in 1935-36 yields of 80 to 100 tons of cane per acre were obtained without any reduction of sugar. Experimental demonstrations in many other places have also confirmed the immense possibilities of improving the cane yields and the recovery percentages. As the present yields are very low in India, there is every possibility of increasing the yield by the use of rotation of crops and proper manuring. The supply of adequate manure is, therefore, an important problem and we welcome the efforts that the Government of India are making since 1945 to establish a plant for the manufacture of ammonium sulphate in this country. We hope it will be possible for the factory to be set up near Dhanbad in Bihar at an early date to meet the needs of sugarcane areas (as also of other crops) in respect of fertilisers.

Ratooning and its utility

There has been considerable controversy on the subject of ratooning and its suitability for the Indian soil. Expert opinion has now veered round the view that ratooning is justifiable and that it is quite possible to get as high yields of cane from the ratoon crop as from the plant cane, and that the cost of cultivation of the ratoon crop is much less than that of the plant crop. Some of the Co. canes are very good ratooners. The old indigenous canes had very poor ratooning capacity and consequently very little of the crop was ratooned. With the expansion of the area under Co. varieties, the percentage of area under ratooning to the total area has shown very considerable increase. It has been estimated by the Agricultural Marketing Department in their Report on Marketing of Sugar in India, that in the years prior to 1938-39, approximately 20% to 30% of the total cane area was generally covered by ratoons. Mr. N. L. Dutt argues in his Report on the Survey of Sugarcane Research (1946) that the figure is now more than 30%. It has also now been established successfully that ratoons are by no means more liable to insect attacks than plant crops. Consequently there is no danger of augmenting the pest trouble by continuing the practice of ratooning. In the past practically no work was done to evolve a suitable cultural, manurial or irrigational schedule for a ratoon crop. Now that the controversy regarding ratooning has been practically set at rest, systematic work must be immediately started on the ratooning of cane in all the Provinces. As we observed above, it cannot be denied that the cost of production of *successful* ratoon crop is much lower than that incurred in the case of plant crop, and it is safe to say that the future of the sugar industry is seriously linked with our ability to produce profitable ratoons. It is, therefore, absolutely essential that the cultivators should be taught proper methods of raising successful ratoon crops.

Generally speaking, our yields of ratoon crops are lower than those from plant cane, but in certain tracts the ratoons give as good yields as the plant, and the reason for such good ratoon crops lies in the good agricultural practices employed by cultivators. Unfortunately, however, in certain tracts the ratoon crop is being taken as a free crop and hardly any attention is paid to its proper culture, the crop sometimes receiving no culture or manure whatsoever. The Development Department will, therefore, have to change the mentality of the cultivators who treat ratoons with indifference and as a free crop, so that they may learn to pay the same attention to the ratooning of crops as they at present pay to the plant crop. The Research Stations should also interest themselves in this matter and conduct experimental work at an early date. It is noteworthy that ratoon crops mature earlier than plant crops and it is, therefore, necessary that in the factory areas the crushing programme should be so adjusted that the ratoons are taken up first. The ratoon crop can very adequately meet the need for earlier maturing varieties. Mr. N. L. Dutt goes to the length of stating that in tracts where the area under ratoon crops occupies about 30 per cent of the total sugarcane crushed, the recovery of sugar can be substantially increased (by about 1 per cent)

if the principle of "Ratoons first" is accepted and rigorously followed. The ratoon crop should not be allowed to stand in the fields later than the first week of January.

Rotations

The problems regarding sugarcane rotation are mainly two, (1) to find out the comparative economics of the main sugarcane rotations, and (2) to find out the effects of different rotations on the fertility of the soil, particularly with reference to the effect of different crops preceding sugarcane on the yield of cane.

In the past, very few rotational experiments have been conducted at the Research Stations, the main reason being that a properly laid out rotational experiment needs a fairly big piece of land which our Research Stations* at present do not possess.

One significant change that has gradually come in certain tracts is the introduction of green manuring of crops under rotation. To maintain the fertility of the soil, the practice of green manuring deserves to be encouraged in every possible way.

High cane Prices and Position of the Industry in U.P. and Bihar

The high minimum prices of sugarcane, namely, Rs. 0–14–6 per maund, in 1945–46, in the U. P. and Bihar, although inadequate and unsatisfactory as compared with the prices obtainable for other food crops during the war time, were a considerable improvement over the prices for the previous years. In view of the fact that there was a shrinkage in the area for cane cultivation, and in appreciation of the higher cost of cultivation, it appears that the minimum prices of cane fixed for 1946–47 will be higher and are likely to be fixed at about Rs. 1–3–0 per maund.** These higher prices have been suggested both by the representatives of cultivators as also of factories, out of regard for the future of the industry. At the same time the U.P. and Bihar Governments should not forget that the main advantage of the industry in these two provinces lies in the production of cane at cheaper rates than in other provinces, and if it is sought to be nullified by the fixation of progressively high cane prices, levy of high cess on cane and the imposition of other handicaps on the industry, the sugar industry may easily shift or divert to other parts of India. This will mean a great blow to the agriculturists in the U.P. as sugarcane is a cash crop of no mean size and significance. We, therefore, suggest that the Government of the U.P. and Bihar should always keep this aspect of the question prominently before them and should take such action as is calculated to impart strength and stability to the industry and cultivation of cane in their areas.

All-India Angle Essential in the Development of the Industry

While the local and peculiar position of the sugar industry in the U.P. and Bihar should be protected and conserved by suitable measures, in any plan of

* We suggest that in order to enable research work being carried out on a comprehensive scale, larger acreage of land should be made available to various Research Stations.

**In October 1946, the U.P. and Bihar Governments fixed the price at Re. 1–4–0.

further expansion of the industry, we suggest that attention should be fixed prominently upon the necessity of dispersal of the industry in other parts of the country. The weakness in the structure of the sugar industry as it exists at present, namely, concentration of a large number of factories in the U. P. and Bihar, and the difficulties of transport experienced during war-time must serve as useful lessons in directing further development. We feel that the problem of development and planning of the sugar industry in the future is a very important one and unless the matter is viewed not from the provincial angle as at present, but from an all-India angle, and unless suitable measures are at once adopted for the regulation of the industry on an all-India basis, the future of the industry might be in jeopardy.

As we have observed in an earlier portion of the *Annual*, the need is bound to be felt for expansion of the sugar industry in other provinces, looking to the larger potentialities and internal demands following the introduction of new plans for the improvement of the economic conditions of the masses in India. When these plans begin to take shape and when the necessity is felt for increased production of sugar, every other province (except the U.P. and Bihar) must have its due share in the establishment of factories in its area.

We have referred to the attitude adopted by the Government of the U.P. in a memorandum which they submitted to the Government of India in the year 1945, in an earlier portion of this *Annual*. We feel that while the industry located in the U.P. and Bihar should not be interfered with in any manner, future development must only be encouraged in other areas like Bombay, Madras, Bengal, Punjab and other States. We, therefore, welcome the statement of the Government of India issued in 1945 for a unified central control, supervision and direction from the Government of India, in the major industries of India, including the sugar industry. In our opinion it will be a mistake to encourage the establishment of any more factories in the U. P. and Bihar, and we suggest with all the emphasis at our command that all further development of the industry must be in areas outside the U. P. and Bihar out of regard for the larger national interests of the country. While stating this view emphatically, we would like to make it clear that we are not opposed to the present factories extending their capacity to some extent for balancing the plant or making it an economic unit of, say, 800 tons capacity, in order to increase the efficiency of the factories. We feel strongly, however, that full opportunity should be given to undeveloped areas for establishing any more factories that may be needed for meeting the increased demand of sugar in the years to come, both for the internal market and for export to neighbouring countries.

A Note Re: Working of the Cane Development Department in the U. P. During 1944–45

A drive to organise cane development in U.P. was launched by the Provincial Cane Development Department in 1938–39. The following Note details the programme which includes the following :—

(1) Development of compact zones in the vicinity of factories.
(2) Selection and propagation of tested varieties of cane.
(3) Provision of suitable manures.
(4) Zone trials.
(5) Systematic regulation of seeds.

The development scheme was first started in 1935 with the help of a contribution from the Government of India. The U.P. Sugar Factories Control Act for the reservation and assignment of areas was passed in 1938 and that system has been in vogue ever since. We give below an official note which describes briefly the working of the Cane Development Department in the U.P. in 1944-45:—

Working of the Cane Development Department in the U.P. during 1944-45

From the point of view of cane work, the province consists of 98 cane zones, which are in the charge of six range officers for administrative purposes. During the year there was no change in the ranges.

The total cane area reserved for factories was 927 thousand acres of which 776.57 thousand acres from 19,183 villages was under the control of Co-operative Cane Societies numbering 91.

The policy of intensive development of sugarcane within 10 miles' radius of the factories continued with the result that *72.5% of the total crush of the factories was supplied at their gates.* The scheme of 50 acre blocks was pursued further which resulted in higher yield (by approximately 50%) than the average yield of the reserved areas all over the province. These blocks are serving as demonstration plots for the areas round about them and have helped to improve the general standard of cane cultivation.

Zonal trials were laid out at 29 different centres during the year to demonstrate and confirm the results achieved at the Research Station concerning suitable varieties for different areas, cultural practices and the optimum doze of the manures to be given under different conditions of soil and climate, etc. Special stress was laid on the selecting of disease-free cane seeds of approved varieties, demonstration of improved implements and fertilizers and the adoption of improved methods of cane cultivation.

Distribution of Seed

Healthy cane seed only of varieties approved by the Regional Committees was distributed during the year. Very small quantities of cane seed were imported as most of the seed was available locally with registered seed farmers of the 50-acre blocks. In all 17,90,760 mds. of cane seed was distributed during the year. Seed subsidy amounting to Rs. 90,683 was allowed by Government during the year.

Distribution of Manure

Difficulties in transport coupled with high prices, stood in the way of extensive distribution of fertilizers; yet distribution of manure marks a distinct improvement over last year. In all 1,25,304 mds. of cakes and fertilizers and 5,093 mds. of sanai seed were distributed during the year. Farm-yard manure was extensively applied and efforts were also made to popularise the use of press mud. Rs. 79,283 were allowed as subsidy on fertilizers, sanai and composting, etc. during the year.

Distribution of Implements

As a result of large-scale propaganda and demonstrations carried on to induce the growers to use improved implements of tillage, demand for improved implements in general and Gurjar ploughs and chaff cutters in particular increased, despite high prices, to an extent that it could not be met in full. In all 19,349 implements were distributed during the year.

Weather Conditions

The rains were scanty throughout resulting in the failure of paddy and other kharif crops in most of the areas. As regards cane crop, stunted growth and poor tillering resulted in poor yields throughout the province.

Insects, Pests and Diseases

During the year, the sugarcane crop was not subject to any major pest, attacks or diseases. Sporadic and stray cases of red-rot top-borer and mosaic were noticed in some places but immediate steps were taken to check the spread of the diseases and the damage caused by them was insignificant.

Factories and Crush

66 factories worked during the year and crushed 1421.12 lac. mds. of cane. The average recovery was 10.2%.

Cane Co-operative Societies

The Cane-Growers' Co-operative Societies are playing an important role in the economics of development and marketing of cane. They are democratic in character and their byelaws provide for multi-purpose activities, though development and marketing of cane are their chief functions. The total number of such societies in the province was 91 spread over 19,183 villages with a membership of 7,47,649 growers. The number of primary societies was 4,313 during the year. Despite increased burden, due to rise in cost of management, etc. on the financial resources of the societies, these societies have given a good proof of their ability to manage their economics. The working capital, accumulated reserve, and other funds of these societies come to Rs. 62,62,825, Rs. 12,47,619 and Rs. 19,73,618 respectively. During the year, these societies advanced loans to their members amounting to Rs. 25,15,966, 98% of which was given for seed, manures, implements, purchase of fodder and cattle, etc.

Marketing of Cane

The area under sugarcane during the year 1944–45 was less than in the previous year. The cane price was not attractive and a large quantity of cane was converted into *gur*. Difficulties of transport facilities caused by inadequate allotment of railway wagons and petrol were also experienced. Still the societies were able to supply 1056.72 lakhs mds. of cane to the factories out of a total crush of 1421.12 which means they supplied 74.8% of the total crush. The value of cane supplied to factory comes to Rs. 925.09 lakhs. These societies are becoming very popular with the growers day by day and it is expected that within a few years, the entire supply of all the mills will be handled by the societies.

1944–45 was a difficult year through which the sugar industry had to pass. But both the factories and the co-operative societies combined to overcome the difficulties to bring about maximisation of sugar production from out of the resources available.

The attitude of the factories in general towards co-operative societies in their reserved areas was helpful.

Seed Store

Seed stores form a very important link in the chain of development plan and their importance cannot be over-emphasized. During the year under review, 79,644 mds. of seeds, mostly wheat and other rabi grains, were distributed at the existing 62 seed stores giving an average of about 1,300 mds. per store. Only 5,887 mds. of paddy was distributed in the Eastern districts.

Rural Development Activities

The financial position of the societies in general stood in the way of big village uplift schemes involving high financial commitments. Work of minor nature only such as boring, construction and repair of wells, improvement of cattle, digging of manure and compost pits, giving educational and medical help to their members and propagating the benefits of thrift and self-help amongst the members could be taken up. Road development funds have been organised in local zones by factories and the societies on contributory basis and during the year under report Rs. 90,231 were contributed by the growers towards road fund. In all the societies repaired 520 miles of kachha roads and 3.6 miles of pucca road and constructed 33 miles of kachha and a good portion of pucca roads. They also constructed 112 culverts and bridges, repaired 25 culverts and constructed one big pucca bridge. The societies have undoubtedly given some relief to their members in this direction with their meagre resources but whatever these societies have done and are doing is only a meagre fraction of the whole problem.

Cane Price

The year 1944–45 was not a good crush year. Most of the factories had hardly a 100-day working. Sugarcane prices were fixed at annas 14 per md. out

of which As. 2 to As. 3 per md. were deducted towards the Defence Savings. This Defence Drive continued upto 25-1-45. The amount deducted was Rs. 1,04,82,146.

Working of Cane Co-operative Societies in U. P.-Working of the Central Sugarcane Research at Shahjahanpur in 1944-45

Valuable research work was carried on at the Central Sugarcane Research Station of the Imperial Council of Agricultural Research at Shahjahanpur, during the 1944-45 season. A short resume of the work done in 1944-45 is given below as it is felt that it would be appreciated by the factories, particularly in the U.P.

A Short Resume of the work on Sugarcane carried out at the Central Sugarcane Research Station, Shahjahanpur, in 1944-45

Varietal

New varieties of cane are obtained for trial in the U. P. from two sources :— (1) as cuttings imported from Coimbatore out of selections made at Coimbatore, and (2) from seedlings raised at Shahjahanpur from fluff of crosses made at Coimbatore. In 1944, however, for the first time, fertile sugarcane seed was obtained from fluff collected in Eastern U. P. and seedlings have been raised from these at Shahjahanpur. These seedlings are at present under observation. The fluff of 3 crosses (Co. 527, Co. 385, and Co. 508 with Co. 421 and Co. 312) was received from Coimbatore and the new seedlings obtained from these crosses are also under observation. Several new promising varieties like Co. 557, and CoK. 30 were brought under final trials, and others CoS. 186, CoS. 245, CoS. 222 and Co. 464 were issued to out-station centres for trial. Some of these viz. CoS. 245, CoS. 222 and Co. 464 are high-sugared and CoS. 186 is expected to give a high yield as a mid-season cane. Co. 453 issued earlier is giving a high yield as a mid-season cane, its yield being about 25% higher than that of the standard canes all over the province; its performance in the factory is being tested. Three new varieties Co. 527, CoS. 76 and CoS. 146 released earlier are being encouraged in the Rohilkhand and Central tracts. These varieties have given good yields in many places and high recoveries of sugar in mill-tests.

Agronomical

Several years' cropping with sugarcane alternately with following in the same field under various doses of nitrogen, phosphoric acid and potash has failed to show any response to the latter two nutrients. Nitrogen however continues to give increases in yield. *Nitrogen in sulphate of ammonia was found to be about 2½ times as efficient as farm yard manure in increasing cane yields.* Farm yard manure being essential for maintaining the humus content of the soil and for improving soil texture, it is necessary to apply it in much larger quantities in proportion to the lesser effectiveness of its nitrogen. The response to oilcakes was slightly less than that to sulphate of ammonia. The optimum level of manuring with

groundnut cake appeared to be well above 120 lb.N. per acre. Application of sulphate of ammonia and castorcake in furrows at planting time had a slightly beneficial effect on the increase of cane yield, but application in a number of small doses did not materially increase the response to the manure; these results, however, need confirmation. Among leguminous crops, lobia (Vigna catjang) gave as good yields of cane as sanai (Crotolaria juncea) when used for green-manuring. Cane green-manured with guar (Cyamopsis psoralioides) and Dhaincha (Sesbania aculeata) did not give as good increases in cane yield as sanai. Irrigation of late planted cane, immediately after planting, greatly mitigated the losses in yield due to late planting.

Botanical

The density and arrangement of denticules and silica cells on the epidermis of the leaf midrib appears to influence the degree of resistance to top borer attack. The size of epidermal cells appears to increase with increasing doses of nitrogen given to cane. Studies were carried out on the passage of red-rot spores suspended in water through the top portion of living cane. They indicated that the spore suspension passes through the vascular bundles of varieties which are susceptible to red-rot more easily than through those of varieties which are resistant to red-rot.

Chemical

In all the four leguminous crops tried as green manure the total organic nitrogen and available nitrogen in the soil were highest in February following the incorporation of the crop into the soil. This peak coincides with the most suitable time for planting cane. Farm yard manure and sulphate of ammonia applied to the field in mid-February showed the highest levels of total organic and available nitrogen in the soil in the following months of March and April. Nitrogen content in the soil was higher where sulphate of ammonia was applied than where farm yard manure was applied. In the case of oil-cakes also the nitrogen content was the highest in mid-April. With cattle urine earth, hoof-and-horn manure and sulphate of ammonia applied in the 2nd week of April, the nitrogen contents were highest in May. Studies on the ash of cane-juice showed that nitrogenous manuring significantly reduced the phosphate content of juice. Phosphate and potassic manuring however appeared to increase the percentage of phosphate in juice. Lime content of juice was higher where cane had been given additional nitrogen as manure, but phosphatic and potassic manures do not make much difference. The six varieties tested viz. Co. 313, Co. 421, CoK. 27, Co. 557, CoS. 302 and CoS. 306 did not differ significantly among themselves in the contents of phosphates acid, potash and calcium in their juice.

Physiological

In the experiment on the combined effects of the different doses of nitrogenous manuring, different planting dates, varieties and densities of plant population, the

yield of cane was best in February plantings and in higher doses of nitrogen. The response to nitrogen was highest in Frebruary planted cane. Yields were increased when seed-rate was raised from 25,000 to 37,500 buds per acre, but further increase failed to increase the yields significantly. Co. 331 and Co. 421 gave higher yields than Co. 313. Conservation of water in the fields during the previous monsoon by means of 'mends' did not appear to improve the germination of cane, but the soil moisture content, tiller numbers and yield of cane per acre were slightly higher in plots which had 'mends'. In experiments on the critical period of irrigation it was found that the value of irrigation in May and June was greater than those in April; post-monsoon irrigation help to increase the yield of cane crop which has been adequately irrigated during the premonsoon period. Water or lime-water soaked seed-cane gave yields significantly superior to that of unsoaked cane. Yields from 3-budded setts was higher than that from 2-budded and 1-budded setts.

Mycological

Survey of diseases in the U. P. showed that West U. P. was comparatively freer from red-rot and wilt than East U. P. Red-rot was reported on Co. 312 in several localities in the Central and. Eastern U. P., particularly in Allahabad, Azamgarh, Jaunpur, Ghazipur and Gonda. Co. 527, Co. 331 and Co. 421 suffered from wilt in some areas in Barabanki and Gorakhpur districts. Disease resistance tests showed that Co. 312 and CoK. 26 are highly susceptible and Co. 453 is highly resistant to the light strain of red-rot. Several strains of red-rot and also of wilt were studied for their virulence on different varieties; the differences between the strains were not significant. Red-rot inoculated setts germinated almost as well as healthy setts after soaking with hot water (52°C) for 24 minutes, while untreated inoculated setts practically failed to germinate. The effect of temperature on the infectivity of cane by red-rot fungus was also studied. Another experiment on red-rot showed that the red-rot fungus when inoculated, gives longer lesions in the middle portion of the stalk than in the top and bottom portions of it.

Statistical

From the results of the uniformity trial on cane, it appears that the optimum size of the 'block' for cane is about 1/5 acre, and plots may be between 1/30 to 1/40 acre or even 1/60 acre. The shape of the block need not necessarily approach a square, the optimum shape depending upon the trend of fertility in the field. The fertility contours of the wheat crop in the same field did not show similarity with that of cane. Experiments on sampling cane for juice analysis indicated that in the experimental error of these determinations the major part is played by sampling variation. Studies on the size of holdings in relation to the yield of cane per acre showed no correlation between the two. There appears to be negative correlation between the sucrose content in-cane and the humidity of the atmosphere in the early season (October).

Entomological

Experiments on stem borer attack showed that when the attack takes place at the time of germination, the clump suffers in cane formation, but attack in the later period brings about an increase in the yield of cane from that clump. Pyrilla infestation as judged by egg-masses deposited was much less in cane crops planted in strips of 10 rows, separated by blocks of wheat and cotton, than in compact blocks of cane, but the yield of crops went down by 17% in cane, 62% in cotton and 14% in wheat as a result of strip-cropping. Intercropping with guar in cane failed to reduce the incidence of borers, but instead reduced the yield of cane. Increased spacing between cane rows failed to reduce the degree of pyrilla infestation. Varietal susceptibility to different insect pests was worked out. Termite damage to buds increased with the progress of the hot weather and with the period the sett was allowed to remain in the soil. Soaking setts in phenyle and in lime-plus-lead-arsenate solution was found to be useful in warding off termite attack. The complete removal of attacked shoots reduced stem borer attack by 41% in May, while killing of borers by cycle spoke reduced it by 28%. The latter method appears to be cheap as well as practicable.

Soil Science

Soil studies carried out during the year confirm the earlier classification of Gorakhpur soils into 3 types :—

(1) Soils with a high reserve of lime (Bhat soils),

(2) Partially leached calcium soils underlaid with a bed of calcium carbonate, and

(3) Leached calcium soils.

The study of clay fractions in these soils shows the siliceous nature of their clay-complex. Studies on rapid chemical methods for soil analysis have shown that though the determinations of pH, nitrates and ammoniacal-nitrogen by the RCM are satisfactory, the determination of other constituents presented difficulties, and the methods could not be recommended for general adoption. Juice-quality survey brought out the fact that cane ripened earlier in type I soil than in the others, but ultimately the highest sucrose in cane was obtained in type II soil. Cane showed a response to phosphates in addition to nitrogen in sub-type A of type I soil and in type II soil.

Cane Development in Bihar in 1944–45

The Central Sugarcane Research Station at Pusa in Bihar also continued the good work done in cane development. Mr. K. L. Khanna, Sugar Specialist, Bihar, has been good enough to prepare a short note giving a summary of the salient results of research during the year 1944–45, from which the following chief points are recorded :

(a) Agricultural—Varietal

The varietal position during the year in North Bihar may be put down at 60% Co. 313, 25% Co. 513, and the remaining under Co. 395, Co. 508 and Co. 356. The last named variety had to be discarded owing to the erratic fall in milling operations. Co. 513 has greatly worked its way up in view of its more hardy nature and suitability to both waterlogged conditions and deficient monsoon.

In South Bihar Co. 313 and Co. 513 combined occupy 25% of the area, while that under Co. 453 and CoK. 32 was slightly over 5%. Co. 331 still dominated, but with a large-scale re-seeding attempted during the 1944–45 season, it is likely that during the next two seasons Co. 313 will be entirely eliminated by Co. 453 and CoK. 32. The two varieties occupy roughly 70% of the total area under cane.

(b) Manurial

As a result of the "Grow More Food" campaign, the area under cane fell considerably, with the result that cane was now being both preceded and succeeded by cereal crops. A survey of the fields showed that these factors adversely affected not only the yield of the sugarcane crop but also affected food crops in rotation.

(c) Miscellaneous

The Watch and Ward Service initiated a couple of years ago in collaboration with the industry successfully controlled the smut and striga trouble and circumvented the westward move of a very serious stem borer.

The varietal census services introduced during the year provides for improvement in the belt in the matter of varietal improvement.

Cane Growers' Co-operative Societies in Bihar in 1944–45

We give below a short note indicating the development of Cane-growers' Co-operative Societies in Bihar in 1944–45.

Progress: By the end of 1944–45, the numbers of societies and unions were 3,587 and 57, respectively; and the total membership stood at 76,844.

Cane Supply: The Societies supplied 94,36,382 maunds of cane to the factories for which they received Rs. 87,40,856 as price. The commission earned by the societies amounted to Rs. 1,47,443.

Agricultural improvement: 6,374 sets of improved agricultural implements provided by the Department of Industries, were purchased by the various societies.

Owned Capital: The owned capital of the societies at the end of the year under report amounted to Rs. 3,04,478. The declared policy of the department is to discourage borrowing from outside. Necessary arrangement was, therefore, made with the Bihar Provincial Co-operative Bank to advance loans to the different

societies for development work; and the Bihar Provincial Co-operative Bank advanced loans to the tune of Rs. 87,164.

Training: Government have recently sanctioned the establishment of a Co-operative Training Institute consisting of an officer-in-charge, 2 Assistant Lecturers, one Amin and one office clerk for the training of office-bearers of Cane-growers' Co-operative Societies and unions. It is expected that at least 2 to 4 hundred members would be benefited by this training every year.

Multi-purpose activities: The societies have started paying attention to other activities as well as the supply of cane. Some of the societies have been granted licence to deal on controlled commodities, such as kerosene oil, sugar, etc. Marketing of other agricultural produce is also being taken up by some societies.

Co-operative Farming: Some of the members of the societies have offered their lands to their societies for cultivation on a Co-operative basis. The societies will return the lands to the members if the experiment does not succeed. Records of rights and maps have, therefore, been carefully prepared before consolidating the holdings. Labour and bullocks for cultivation are contributed by the members in proportion to their share in the holdings. The produce is to be divided in the same proportion amongst the members after deducting a small amount for seed in the next season.

Administration: The province was divided into 5 circles and each was put in charge of an Assistant Registrar of Cane-growers' Co-operative Societies. The field staff consisted of 40 Organisers and 120 Supervisors.

Paramount need for Research Work Emphasised—Work before the Sugarcane Committee

The main problem of the sugar industry has been, and still remains, agricultural. Until the average yield of cane per acre is increased to about thrice its present average yield of 16 tons per acre, the industry cannot be said to have been placed on a stable basis. The production of improved varieties of cane having higher sucrose-content and yielding heavier crops, and their proper cultivation without affecting the fertility of the soil are questions of primary importance. Valuable research work is being done at the experimental farms and the Imperial Council of Agricultural Research Station at Coimbatore, where the development of improved sugarcane breeds and has produced far-reaching improvements in cane cultivation. Mention must also be made in this connection of the research work carried on in Anakapalle, Padegaon, Dacca, Shahjahanpur, Pusa, Izzatnagar, Mysore, Hyderabad and many other places for breeding thick canes, for eradicating pests on sugarcane and for improvement in yield of cane per acre. These schemes of improvement were periodically reviewed by the Council of Agricultural Research. Now that the Indian Central Sugarcane Committee has been set up since 1944, it has assumed the responsibility directly for all this work of research and improve-

ment and its co-ordination. At the same time, we suggest that it should try to harmonise all the various activities and make the work of the Provincial Governments and States fit in with the general scheme of all-India research work carried on from year to year. We feel it would be very helpful if the Indian Central Sugarcane Committee begins publishing from time to time reports on the progress of various schemes and bring them to the notice of the industry in order to enable it to know and appreciate what is being done in this connection.

In our 1944 *Annual*, we gave a summary of the proceedings of the inaugural meeting of the Indian Central Sugarcane Committee (*vide* page 73). In the previous pages of this *Annual* we have given an account of the activities of this Committee in 1945-46. (*Vide* pages 27 & 88 and also xxxi).

Central Sugarcane Committee to Undertake Research on Development

We have already referred (*vide* page 88) to the work done by the Indian Central Sugarcane Committee during the year 1945-46. We feel that the Central Sugarcane Committee should undertake extensive research work and earmark larger and larger amounts of money for research work which, we suggest, should be carried on in close consultation with the factories. We also suggest to the Government that a sum of at least 3 annas per cwt. out of the excise duty on white sugar, instead of one anna as at present, should be placed at the disposal of the Committee by the Government of India in order to enable the Committee to extend its activities and to place the industry on a sound footing by organised research work leading to an improvement in the quality and yield of cane per acre and to a reduction in the cost of production thereof, at an early date.

Improvement in Cultivation most Essential

The chief problem of the industry at present is that of effecting improvements in the yield and cultivation of cane. It must be known, understood and clearly realised that India will not be able to sell sugar on equal terms in the world markets until the price of cane is brought down to about 4 annas per maund. The industry cannot afford to rest on its past laurels and must take steps to meet competition of other countries, sooner or later. If it is to compete successfully on equal terms with other countries and maintain its complete hold unimpaired over the home market, it is necessary to reduce costs of cultivation and produce sugarcane at a very low cost. Strenuous efforts should be made whereby the cultivator can produce sugarcane at a cost of, say, 4 or 5 annas per maund, by intensive cultivation of land, by the growth of cane of heavy yield, etc., by the proper rotation of crops, by irrigation, manuring and utilisation of improved methods of cultivation of soil. Just as manufacturing efficiency is no doubt important, agricultural efficiency and the percentage of sucrose in cane are still more essential. The quality of the cane and the yield per acre need therefore to be very much improved in India, and as early as possible.

Work of the Imperial Institute of Sugar Technology, Cawnpore

The Government of India started the Imperial Institute of Sugar Technology at Cawnpore, for a period of five years, from 1st October, 1936. The Sugar Section of the Butler Technological Institute was amalgamated and taken over by the Imperial Institute of Sugar Technology. The management of the Institute was under the direction of the Imperial Council of Agricultural Research. The Institute undertakes research work on (*a*) problems of sugar technology in general and sugar factories in India in particular; (*b*) utilisation of the by-products of the industry; (*c*) testing and development of cane to suit factory conditions; and (*d*) general problems of sugar engineering and chemistry. With the constitution of the Sugarcane Committee the Institute has gone under the management of the Committee which is responsible for the future functioning of the Institute. Some plans for shifting the institute to Lucknow are under contemplation (1946).

In addition to the above functions, the Institute provides adequate facilities for the training of students in all branches of sugar technology. It also provides sugar trade information services, bureau of sugar standards, and an employment bureau. It is designed to serve the needs of the industry in technical, commercial and statistical matters.

Cost of Cultivation of Cane and Fair Price of Cane

In the year 1933, the Imperial Council of Agricultural Research instituted an enquiry throughout India to ascertain the cost of cultivation of sugarcane and cotton crops of India. The results of their enquiry were published dealing with the cost of cane cultivation in various provinces. The Tariff Board of 1937 also examined the cost of cultivation in the principal sugar-producing areas. They came to the conclusion that 0–3–7 per maund was a fair estimate of the cost of cultivation in U. P., 0–3–4 in Bihar, 0–5–3 per maund in the Punjab, 0–7–0 in Bengal, 0–5–10 in Bombay, and 0–5–5 in Madras. The Tariff Board also observed that allowing for the same climatic advantages, the possibilities of a general improvement in tonnage and quality were greater in the South than in the North, and an equalisation of the cost of production is feasible at no distant date. For the purpose of estimating an all-India figure, however, the Tariff Board observed that greater weight should be given to the cost of cultivation in the United Provinces and Bihar, the main sugar-producing areas. Taking all points into account, the Tariff Board considered that 0–3–9 per maund might be taken as a reasonable estimate for the cost of cultivation for the whole of India. The Tariff Board further considered as to what would be reckoned a reasonable margin of profit to give the cultivator and arrived at the conclusion that six pies per maund on an estimated cost of 0–3–9 was in their opinion a fair figure. Therefore, the Tariff Board estimated 0–4–3 per maund as the fair price for cane.

As this data has now become completely out of date and obsolete, we suggest that an enquiry should now be conducted to ascertain the present costs, in order

to enable fair prices of cane being fixed, and to consider the possibility of fixation of prices according to qualities, etc.

Marketing of Sugar—Report Published in 1943

The question of marketing of sugar and sugarcane was discussed at the meeting of the Sugar Committee of the Imperial Council of Agricultural Research on the 3rd May 1937, at Simla and such survey was undertaken under the guidance of the Agricultural Marketing Adviser to the Government of India, with a view to assist in placing the sugar industry on a sound footing. The report was published in 1943. It has comprehensively dealt with the marketing problems and made useful suggestions.

Factories Definitely Prefer Gate-cane to Rail-borne Cane

Generally speaking, cane is transported to factories by carts and lorries within a radius of about 15 miles from the factories. The area near the mills is termed as gate-cane area. Factories prefer gate-cane to rail-borne cane for various reasons including its freshness, uniformity of supply, less dependence on wagons which sometimes arrive late, and less handling. We have no doubt that with the improvements of roads and communications, larger and larger quantities of cane will be brought by carts and delivered to factories as gate-cane. Where gate-cane is not available, the factories have to obtain their requirements of cane from long distances by rail. The average distance of cane brought by rail may be taken as 15 miles and the maximum at about 150 miles. Unfortunately the problem of the cane supplies to mills has considerably been affected by the lack of transport facilities during the last four or five years. The restriction of 10 miles and 25 miles radius of the mills also adversely hit some mills which used to get their supplies by rail. The transport problem of cane, therefore, continues to be serious even now. We suggest that some improvement must be brought about and factories should be enabled to get their cane supplies also by rail with the object of ensuring full crush.

By-Product Industries

We have already dealt wilh the need for the early establishment of the auxiliary and by-product industries of sugar manufacture. Molasses and bagasse, the two main by-products of the industry, should be put to more economical use. Molasses should be used for power alcohol in preference to rectified spirit and power alcohol should be used with petrol as mixture. We have dealt with power alcohol production previously at length. Plastics, pressed boards, wrapping papers, straw-board, rayon, etc. can also be made from bagasse which is now being generally consumed as fuel.

Problem of Marketing Sugar in India

Since 1942, when central control over production, distribution, prices and other aspects of sugar industry was assumed, the problem of sugar and *gur*

marketing does not seem to present any insurmountable difficulties. So long as the potential demand is very large in relation to production as it is at present, marketing will be easy. But in normal times, the problem of marketing of sugar was not so easy as it appears to be now. More than 70 per cent of the sugar produced in India is produced in U. P. and Bihar and this production is far in excess of the internal consumption of these provinces which should necessarily be exported to other provinces. This situation calls for scientific marketing of sugar in the various parts of the country in a manner which would avoid over-lapping, eliminate unhealthy competition, minimise the freight charges and also eliminate import of foreign sugar at the ports and keep the entire Indian market for the home industry. The Indian Sugar Syndicate was formed for this important purpose and it functioned very well until its powers in respect of distribution were taken over by the Government when control was assumed in 1942. We earnestly hope that scientific marketing methods will be carefully studied and the internal markets developed further, as soon as normal conditions return.

We also feel that the production of sugar in the country should be so regulated as would leave a normal carry-over varying between 2 to 2½ lakhs tons at the end of each season. The production of cane should also be regulated evenly with this end in view. The carry-over at present is very small (*vide* page ix of "Sugar Industry at a Glance").

Consumption in Provinces

The U. P. and Bihar only consume about 20 per cent of their normal output per year and export the rest to other provinces and areas. Bombay and Punjab which produce only 7 per cent of total sugar consume largely sugar imported from U. P. and Bihar. The *per capita* consumption varies widely in the provinces, just as consumption varies from urban to rural areas. Bombay is the province where *per capita* consumption is the highest generally and the Indian States are the lowest in such consumption. The variation in consumption in different provinces is due to several factors. The Report on Marketing of Sugar contains very interesting observations regarding consumption of sugar and *gur* by various provinces, classes, and for various purposes. (Also see Tables Nos. 24 and 34 pp. xi and xvi in the "Sugar Industry at a Glance").

Qualitative Analysis of Indian Sugar in 1944-45

During 1944-45 there has been a steady improvement in the quality of sugar produced over the last season, inasmuch as there has been increased production of sugar corresponding to colour 27 and grain size "D". The most common quality this season was 27E, like the last season, but its percentage production has increased this season. Although the percentage of factories producing one grade of sugar has increased this season as compared with the last, individual factories in many cases have continued to produce far too many grades. This appears to be the result of insufficient attention paid to the production of an uniform quality

throughout the season. We suggest that the factories should give more attention to this matter and produce an uniform quality of high grade sugar in their own interest as also in the interest of the industry as a whole.

Production of crushed sugar as a whole has decreased considerably this season as compared to the last one.

Indian Sugar Syndicate's Activities in 1945–46

In the previous *Annuals* we have dealt with the circumstances in which the Indian Sugar Syndicate which is the Marketing Organisation of the sugar factories in the U. P. and Bihar was compelled to curtail it activities to the minimum after the enforcement of sugar control and assumption by Government of distribution of sugar. The Syndicate's activities since the last two years have thus been confined to the collection of statistical data for forming an estimate of the next season's crop and yield, and the assistance rendered to its representatives on the Joint Sugar Control Board in connection with cane and sugar prices calculation, and the publication of the monthly journal *Indian Sugar.* During the year 1945–46 the Syndicate prepared a case for approaching the Sugar Controller for an increase in sugar prices in order to enable the industry to meet the increased charges of manufacture and for payment to labour. The Syndicate also interested itself in regard to the question of pooling molasses by its members. The Syndicate's object was to ensure that all molasses in the U. P. and Bihar which was not required by the distilleries should be pooled by the Syndicate and the proceeds distributed *equally* among all the factories in order to prevent undue price advantage being reaped by some factories at the cost of others. The scheme is at the present time (1946) under consideration of the U. P. and Bihar Governments.

Transport and Co-operation of Railways

The development of the sugar industry has called for an effective co-operation on the part of railways, inland steamships, and other means of transport, in order to find markets at distant ports and internal centres for Indian sugar. Although such co-operation has been slowly forthcoming and various transport arrangements have been made in the past, the war-time restrictions and shortage of wagons have come in the way. Adequate provision of transport facilities was a difficult problem and many restrictions on movement of cane and sugar were imposed to curtail the volume of traffic on railways during the war-period. While no special favour might be asked from railway authorities, co-operation of railways in retaining distant port-markets for Indian sugar as against imported foreign sugar should be made available and war-time restrictions on supply of wagons, etc. should be removed at a early date.

Road Development in Factory Areas and Other Facilities

It is essential to provide good roads in the vicinity of factories for easy transport of sugarcane by bullock carts or other means. During the last 3–4

years, factories have been compelled to depend more and more upon getting their canes from areas nearer the factories by making use of lorries. Particularly, the quantity of rail-borne cane has been considerably reduced due to lack of supply of wagons. It is understood that the launching of a scheme for road development in factory areas estimated to cost about one crore is under consideration of the U. P. Government, and the Bihar Government also propose to spend a sizeable amount for this purpose. The factories were recently asked to submit a list of the roads which they wanted and a list of the roads where repair work should be undertaken. It is hoped that the Governments of the U. P. and Bihar will take a keen interest in this matter and provide suitable roads in the vicinity of factories in order to enable the factories to get their requirements of cane at low cost and with minimum inconvenience to both the cultivators and themselves. There is no dearth of money, particularly because the Governments of the U. P. and Bihar have been levying a cess on cane for the last few years, and it is only fair and equitable that a suitable amount out of this cess should be earmarked for expenditure on roads which are a vital necessity for the factories.

Expenditure on Research and Investigation Benefits All

We have already referred to the paramount necessity of Research work and spending money on it liberally. Expenditure in this respect should be regarded by the mills and the Government as profitable investment which will ultimately pay itself many times. We urge upon the Government of India, the U. P. and Bihar Governments to make sufficient allocations of money for this useful and important work. In 1940, the Imperial Council of Agricultural Research assessed the total value due to increase in improvement of cane at 2½ crores of rupees per annum. We feel that at least a sum of Rs. 50 lakhs a year should be spent for research work and the amount made at once available to the Indian Central Sugarcane Committee. This will only mean about Re. 1 per acre of cane-cultivation in India, and this is negligible.

Bihar Labour Enquiry Committee

In 1938 the Bihar Government appointed a Labour Enquiry Committee for investigating into the problems relating to industrial labour in Bihar and to make recommendations for improvement in conditions of wages, employment, work, etc. Dr. Rajendra Prasad was the Chairman and Mr. M. P. Gandhi, the Author of this *Annual*, was one of the members. The Committee submitted a Report on conditions of labour but no marked progress was made in implementing the recommendations. Proposals were made, however, in 1945, by Bihar Government for ensuring a minimum wage of Rs. 20 per month in sugar factories, which have been generally accepted by factories in 1946.

Conditions of Labour in Sugar Factories in the U. P. and Bihar

It is well known that the sugar industry is essentially a seasonal one, and it is scattered all over the countryside in all provinces, and a large number of factories

are situated in small towns and villages unlike other industries which are concentrated in large industrial centres. Labour in sugar factories is mostly drawn from the agricultural classes living in the neighbouring villages and, therefore, labour conditions in the sugar industry differ considerably from those of other industries. Normally, the working season consists of about 130 days in a year, but during the last two years the season has been curtailed greatly. At the end of the working season, about 90% of the labour force, mostly unskilled workers, and in the beginning of the following season, they are as a general practice re-engaged on their old rates of pay, but in some cases this practice is not followed, only a very small number of workers, skilled ones, being retained in the offseason for repairing and overhauling machinery. Generally no offseason allowance is paid to discharged workers. Some of the factories give offseason allowance to skilled workers at the end of the crushing season at half the wages. The wage rates paid to workers vary from factory to factory but during the year 1946, there has been a prominent tendency noticed for bringing about some uniformity in this matter.

In the year 1945–46 there were several labour disputes between employees and employers of sugar factories in the U. P. and the Labour Commissioner, to whom these disputes were referred, has given his awards. On the basis of these awards, as also on the recommendations of the Labour Commissioner, the sugar factories agreed to pay a minimum wage (including a dearness allowance) of 12 annas per day or Rs. 22/8 per month. The demand for an increase in this amount was disallowed by the Labour Commissioner owing to the fact that sugar prices have been fixed by the Sugar Controller in a manner in which it is not possible for them to increase the labour charges unless the price of sugar was also increased accordingly.

As a result of the amendment of the Factories Act, in 1946, a change will also be necessary in the hours of work of every sugar factory, which is a seasonal factory, and unless the Provincial Governments give special exemption, the factories will have to re-arrange their hours of work, which will be reduced from 56 to 50 per week.* We have referred to this in an earlier section of the *Annual*, in Part I, under "Law and Legislation". (*Vide* page 71).

Most factories have provided some housing for their workers, especially for those who come from outstations, but such housing is neither sufficient nor in all cases suitable. Some of the factories provide one or more of the following: Sugar, Kerosene oil, or chowkies, and buckets. Medical facilities are lacking in sugar factories. Some employers depend on District Board Dispensaries, while some depend on private doctors for looking after their employees. The workers employed in sugar factories at the present time are ill-organised and they aren ot even aware of the provisions of the Labour Acts. A few Labour Unions have been established in sugar factories in the U. P. The movement now appears to gather momentum, and labour is becoming more organised and vocal. We earnestly hope that the Governments of the U. P. and Bihar will take suitable action to minimise labour disputes with a view to ensuring a smooth working of

* This exemption was given by the Central Government to sugar factories, in October 1946.

the industry, particularly because this industry, which is a seasonal one, cannot afford to shut down, both because it will be a national loss due to smaller production of sugar, as also because the interests of the cultivators would be hard hit if it is not possible for the factories to crush cane grown by the cultivators due to strikes in a factory. The conditions in the sugar industry being thus very peculiar, it is the paramount duty of the Government to set up a suitable machinery whereby, while labour is adequately paid, no dislocation of work in factories should be brought about.

Future of the Industry bound up with Increasing Yield of Cane

The future of the sugar industry depends upon the vigour with which research work is carried on in its various complex problems—agricultural, chemical and technological. The success of the industry is greatly dependent on reduced costs of cultivation of cane by increasing yield per acre from 15 tons to nearly 40 to 50 tons per acre. This alone can help the industry to stand in competition with Java, Cuba, and the Philippines, which are advantageously situated for production of cheap cane.

Subsidiary Industries need Development

Efforts should be made to develop subsidiary industries like confectionery, syrups, canning etc. We feel that if suitable assistance is given to the industry, articles like confectioneries, biscuits, sweets, toffees, chocolates, demerara sugar cubes, etc. can be manufactured in this country and these new lines of production can be developed advantageously. We hope larger quantities of sugar will be released for fruit-canning, etc. also after 1946–47, when production of sugar increases.

India Free to Export Sugar

Reference has already been made for the termination of the International Sugar Agreement of 1937 and India's non-participation in it since March 1942. The restriction for export of sugar by sea to other countries is no longer there and so barring the internal difficulties of short production and enormous demand for consumption, there is no ban or prohibition for export of sugar from India. Since the war is now over, this freedom to export sugar will considerably help India to secure a safe market in the Middle and Near East. It may also be hoped that the temporary eclipse of Java and the Philippines from the field will be of help to the Indian sugar industry in gaining some fresh markets for sugar.

Post-war Reconstruction Programme for Sugar Industry

Planning is now the topic of burning interest in India and everywhere there is a talk of economic planning. In this general scheme, the sugar industry will doubtless be included. The Reconstruction Committee of the Viceroy's Executive Committee as well as the Planning and Development Department has put forth copious literature on planning of various industries. The Report of the Sugar

Panel has also been received in 1946. From the foregoing study of the industry, it will appear that the need for reorganisation, consolidation and development of sugar industry is no less vital at the present time and we have stated that this should be done on an all-India basis, keeping in mind the special needs of various units.

Report of the Panel on Sugar, Power Alcohol and Yeast (1945–46)

A panel on Sugar, Power Alcohol and Yeast was appointed by the Planning and Development Department of the Government of India in 1945 to report on the future development of the sugar industry. The panel consisted of Sir Shri Ram (Chairman), Messrs. R. C. Srivastava, Lalchand Hirachand, M. B. Amin, Vishnu Sahay, S. M. Dhar, W. H. A. Webb and Dr. B. C. Guha. The report of the panel was submitted in the latter half of 1946 and we have referred to some of its recommendations on the basis of the reports which appeared in the press. (*Vide* pages 15, 16 and 59). The report has not yet (November 1946) been released for publication.

Government of India's Statement of Industrial Policy

The Hon'ble Sir Ardeshir Dalal, Planning and Development Member made an important statement on the Industrial Policy of the Government of India in April 1945, wherein he stated that major industries would be brought under control and supervision of the Central Government. He also stated that it would be possible that some of the industries might be taken by the Government itself for working on modern lines. Whatever be the controversy about the nationalisation of industries, there can be no two opinions that industrial policy on major development should be centralised and controlled from one place in the interests of all parts and above all, in the interests of the whole of the country taken as a single economic entity.

So far as sugar industry is concerned, all-India control and planning is to be welcomed in the best interests of the whole country.* While the position of U. P. and Bihar as predominant sugar producing areas should be maintained and adequately protected, the need for co-ordinated development in other provinces in new expansions and extensions of the mills cannot be overlooked. Therefore harmony and co-ordination between the various units should be brought about by an all-India control, and with the assumption of office by a Nationalist Government at the Centre, we hope that immediate action will be taken to organise the industry on sound lines.

Control on Sugar to continue

The control on production, supply and distribution of sugar (as also other essential commodities in short supply, like cotton and woollen piecegoods, paper, coal, iron and steel, etc.) will remain, it appears, for at least 2–3 years, in view of the fact that an Act was passed in November 1946, in regard to the above by the Government of India.

* The views of the U. P. Government on this question are referred to on page 73.

Long-term and Short-term Planning Policy

The need for having two sets of programmes suited to the varied calls of the industry cannot be discounted. Immediate augmentation of output of sugar by supply of sulphur, chemicals, lime, fuel, mill-stores, etc. should be aimed at to overcome any temporary difficulties and to give a fillip to the industry. Parts and machine tools should be arranged under priority import list and sufficient transport facilities should be provided. Cane prices should be adjusted to make them as attractive, if not more, and remunerative to cultivators as from cultivation of other food crops. Such of these small measures as are possible should be taken to increase production at once with the existing capacity of the mills.

A long-term policy based on a study of the industry in India in the background of world sugar conditions should be evolved and worked out. Provinces of Bengal, Bombay, Madras and Indian States should be allowed to have a more equitable share in the development of new mills. All these problems must be considered in a long-term policy.

Some Immediate Problems facing the Industry

Now that war in Europe is over, the present is a particularly opportune moment for planning for peace-time. The potential capacity of the industry must be fully utilized for an increased output of sugar. Indian sugar is finding its place in outside markets. We may refer briefly to some important problems which are now confronting the industry and try to see how best they can be impressed upon the serious attention of the industrialist and Government. Among the many problems the following are worthy of special mention :—

(1) Improvement of the average yield per acre.

(2) Eradication of diseases and pests.

(3) Reduction of the cost of production of cane.

(4) Development of improved varieties of cane in reserved areas of factories and growth of early ripening, and late ripening canes to make the duration of the crushing season longer.

(5) Provision of adequate transport and *pucca* roads near factories, and

(6) Standardisation of qualities of sugar and improvements therein.

The sugar industry cannot afford to rest on its oars and should do everything in its power to decrease costs and increase output at an early date.

We might repeat with all the stress at our command that the ultimate success of the industry will depend on the harmony and co-operation amongst the various interests concerned, viz. the industrialists, cane-growers, the various local Governments and the consumers. We cherish the hope that in appreciation of the clear, definite and tangible advantages which flow from the establishment of this great industry in which about Rs. 33 crores of our capital is employed, and no less than 20 million cultivators, about 3,500 university graduates, 120,000 unskilled labour,

and many merchants, transport agencies and other people are engaged, the industry will be helped by the State in every way to attain a high degree of efficiency before long, and establish itself on a firm footing.

Sugar Production in the U. K. and Other Countries

It was pointed out in the previous *Annuals* that the outbreak of the war and scarcity of shipping tonnage had affected the consumption of sugar in Britain adversely. It was also pointed out that due to the same difficulties the *per capita* consumption in the U. K. had declined to 50 lbs. per annum from 121 lbs. and that strict rationing was introduced. For political and military reasons, many of the European countries had to develop and depend upon the output of beet sugar as imports from distant places became difficult. Sugar rationing in the U. K. was primarily due to the difficulties in regard to shipping and the urgent need to conserve shipping for vital war needs. The position even after the termination of the war, has not improved and rationing of sugar continues in practically all countries of the world, including the U. S. A.

The United Kingdom's annual requirements for direct consumption, for manufactures, and other uses are approximately 1.4 million tons now compared with about 2.25 million tons in the pre-war period. Of this total about 500,000 tons is expected to be supplied by home-grown beet sugar and the balance of 900,000 tons being imported from abroad.

The spread of the Japanese war in 1941–42 resulted in the loss of Java, Philippines and other sugar producing islands and even Australia which used to export its surplus to the U. K. was cut off from fear of enemy attack from the other countries. In Australia the production of sugar during 1942–43 is estimated at 655,000 tons as against 748,000 tons in the preceding season, and in 1943–44, at 625,000 tons.

India—the Biggest Producer in the Empire and the World

By sheer force of circumstances, this country is now getting the recognition it ought to have received long ago. The loss of Philippines sugar, the loss of Java and the remoteness of Australia have increased the importance of Indian sugar for defence and strategic purposes of war. Efforts were made to maximise the production of sugar in India, and the production in India in 1943-44 exceeded 12 lakhs tons and this was a very creditable achievement. In the British Empire, India is the largest sugar producing country now. All this remarkable transformation has taken place in a few years. The production during 1944–45 and 1945–46 has fallen to about 10 lakhs tons only.

According to an analysis of the sugar trade by Mr. Alice Mullen and the U. S. Consul in Calcutta, Mr. Charles Brookhary, published in the official organ of the U. S. A. *Foreign Commercial Weekly* of New York, India is fast emerging into a factor in the world sugar trade. "If the present developments continue, India may eventually become a factor in the world sugar market," so runs their opinion.

Three reasons have been advanced by them in support of this contention. Firstly, Indian Sugar Industry has increased white sugar production despite war-time handicaps such as shortage of sulphur and other materials; secondly, India is one of the biggest sugarcane producing countries in the world; and thirdly, during the official year ended March 31, 1943, she exported sugar valued at Rs. 1,10,00,000 mostly to Persian Gulf areas and Ceylon.

Thus the undoubted rise of the Indian sugar industry into prominence in the British Empire and in the world is an important development that has been brought over in a short time. This is a happy augury for the future of the industry in this country.

Proceeds of Cane Cess in the U. P. in 1944–45

The income accruing to the U. P. Government from the cess on sugarcane during 1944-45 amounted to Rs. 1,11,92,263. The final figures of income from the cess during the year 1945-46 are not yet available, but it is estimated that the total income would be in the neighbourhood of Rs. 1,06,25,000.

The proceeds from the cess for the two years were, as usual, merged in the Provincial Revenues, and no portion thereof was earmarked for any specific purpose. The U. P. Government, however, spent substantial amounts from the General Revenues during the financial years 1944-45 and 1945–46, on (1) the Cane Development Department, (2) the staff for the reservation of bonding of sugarcane, (3) the staff maintained for the administration of the U. P. Sugar Factories Control Act, 1938, and the rules made thereunder and the Sugar and Sugar Products Control Order promulgated by the Government of India, (4) the Sugar Commission, (5) the special staff maintained by the Imperial Institute of Sugar Technology in connection with technical and statistical work entailed by the Sugar Factories Control Act and Rules, and (6) the improvement of road communications in areas which are normally sources of cane supplies to sugar factories.

U. P. Government's Scheme for Improvement of Roads near Factories (1946)

In regard to the Government of the U. P., it must be stated that they have launched a scheme for improvement of communications in the gate areas of sugar factories since 1945. In the first phase cement strips or cement concreting of over 500 miles of roads at a cost of over one crore of rupees is being undertaken. This will give on an average about 7 miles to each factory. The Government of the U.P. will give ultimately on an average about 20 miles of such roads.

Industry's Research Institute at Cawnpore

The Indian Sugar Syndicate, Cawnpore, also contemplates putting up a Research Institute of its own for tackling problems of research of member factories. The Institute would involve a capital outlay of 11 lakhs rupees, with an annual recurring expenditure of 1½ lakhs. This Institute will work independently of the Government Institute of Research.

A Brief Note on the Distribution of Gur and its Prices during 1944–45 and 1945–46 Seasons in the U. P.

We have already referred to *gur* control (See pages 31–40). As stated before, *gur* control was introduced in 1943 and movement out of the Province was allowed on permits issued by the Regional Food Controllers on the basis of export quotas fixed by the *Gur* Controller for India for the deficit provinces and states. The exportable surplus in a normal year is usually a little over 3,00,000 tons. There was no statutory control of *gur* prices but a ceiling price was maintained by restricting exports from markets where prices rose above the specified rate.

During the 1944–45 season the ceiling price was fixed at Rs. 8–12–0 per maund for standard quality, on the basis of the sugarcane price of annas 0–14–0 per maund. On the whole prices during the season were stable and remained within the ceiling. The export quota was fixed at 3,50,000 tons by the *Gur* Controller for India and the principal areas receiving *gur* from this province were the Punjab, Bombay, Sind, Rajputana, Baroda, Gwalior, Central India States, C. P. & Berar, Kathiawar, Gujerat States, Bengal and Assam. Some *gur* was also allowed to be exported to Nepal and Iran.

The 1945–46 season opened with a tendency in *gur* prices to rise. By the middle of February prices had gone up above the ceiling in most of the United Provinces *gur* markets. In early March statutory control of *gur* prices was enforced and the price of standard quality *gur* was raised to Rs. 10–8–0 per maund allowing differentials for other varieties of *gur*. As *gur* deteriorates during the summer and the rains, an increase in price at the rate of annas 0–8–0 for May and annas 0–4–0 per maund per month for June and July was also allowed.

Due to the reduction in the average under sugarcane cultivation the season's export quota which was originally fixed at 3,00,000 tons was reduced to 2,00,000 tons. Lately, however, it has been found possible to allow a further export of 84,000 tons. The deficit areas receiving *gur* under this quota are the same as mentioned above with the notable addition of Kashmir and Hyderabad states.

The effect of the manufacture of *gur* on the production of factory sugar during 1944–45 and 1945–46 could be assessed from the fact that during these seasons factories crushed 14.12 crore and 13.94 crore maunds of sugarcane respectively, as against 19.95 crore maunds of sugarcane consumed during the 1943–44 crushing season in the U. P. The fall in crush was due to the fall in acreage of cane also.

World Production and Consumption of Sugar

There have been very striking changes in the world production and consumption of sugar during the last seven years as a result of World-War II. Several countries producing sugar were put out of commission, and this disorganisation, which was caused by the war, has led to a great fall in the production of sugar

during the last 4 or 5 years. From the latest information available to us, we find that the world production of sugar in 1945-46 will be only about 17,667,000 tons and the production for 1946-47 is expected to be of the order of 23,000,000 tons. The pre-war production of the world in 1939-40 was 30,000,000 tons.

Condition of Industry in Java none too good

Sometime ago there were reports that Java had large stocks of sugar amounting to about 15,00,000 tons, but no reliable information is yet available as to whether the stocks are as large as reported and whether they are in a suitable condition for consumption and export. Information is, however, available that the maximum possible acreage to be planted under sugarcane in 1946 in Java is about 75,000 acres, while the actual may be only 55,000 acres. In 1938 there were 2,10,000 acres of cane in Java. The reason for the decrease lies in the small quantity of seed cane.

We also understand that cane Nurseries have been damaged and due to this factor, as also the insufficiency of fertilisers, on which the industry relied so much for its high yield, production may not be very high.

It is also reported that out of the 125 sugar factories existing in Java in 1942, 33 have been liquidated and 57 have been converted to other uses. Only 35 factories remain intact for making sugar. Allowing for the maximum possible supply of cane, the production of sugar in 1947 will depend upon the decreased factory capacity. It is also likely that a considerable amount of deterioration and damage will be found in the machinery of the factories. According to some estimates the cost of rebuilding the industry in Java would be 100 million dollars, which is a colossal figure.

From the above information it is easy to conclude that for the next few years Java is not likely to produce large quantities of sugar, and may not be a formidable competitor that it once was in the pre-war period.

Condition of Industry in Philippines, Egypt, Iran and Formosa

The sugar industry in the Philippines is also considerably damaged and production of sugar in the Philippines also is likely to be smaller for some time to come.

It will be of interest to note that Egypt is also trying to become self-sufficient in the matter of production of sugar and may indeed have a small quantity for export to other neighbouring countries. Its annual production in 1939-40 was 1,59,000 tons, while in 1944-45 it was reported to be 1,72,000 tons. Egypt produces its sugar both from cane and beet.

It is understood that Iran, where sugar production and distribution is a Government monopoly, and where sugar is being produced only from beet, there are 8 factories working, 3 being in Teheran. During 1944-45 the quantity of sugar produced was 23,000 tons, and in 1945-46 about 26,000 tons. In 1939-40 Iran imported 94,000 tons of sugar.

In the island of Formosa, which used to produce large quantities of sugar, considerable damage has been done to sugar factories, but even so the limiting factor in the production of sugar will be cane supplies, which again will be greately decreased due to severe shortage of fertilisers.

Post-War Planning for Sugar

At the present moment all countries are engaged in planning the development of their industries in the post-war period, and sugar is no exception to the rule. It appears that the shortage of sugar production in relation to consumption which has definitely shown an increase, will continue for at least 3 or 4 years. In the pre-war period the world produced and consumed approximately 30 million tons of sugar. It will take at least 3–4 years for the world supply of sugar to equal this demand, and it should not be forgotten that the production of sugar at 30 million tons even, will not be sufficient because the population must have increased since 1940, and all the visible stocks estimated at about 10 million tons annually have practically disappeared. Due to this, the world will have to produce larger quantities of sugar than at present and we feel that before 1950 it will not be possible to get back to normal on the sugar situation. For the next 3–4 years at any rate there is no danger whatsoever of over-production of sugar. If anything, the present shortage will continue to be witnessed and suitable measures will have to be taken for increasing the production of sugar, the demand of which is growing, due, *inter alia*, to its value as an energising food being recognised all over the world.

Indian Sugar Industry's Progress must be maintained

The remarkable progress made by the sugar industry since 1932 and the magnificent contribution it has made towards meeting the urgent demands of sugar during this period, including the six years of the World War, must meet with the highest appreciation of the public and the State. There is no doubt that the industry has fully justified the measure of liberal protection granted to it. The war has revealed the necessity of strengthening the position of this industry for any emergency which may crop up. Its further development has also become necessary due to the requirements of the millions in this country of an energising food containing 100 per cent carbohydrates of which there is a short supply both in India and in the whole world at the present time. The country has been starved of supplies of sugar in spite of the policy of the Government to maximise sugar production in the country, because except in one year, namely, 1943-44, it was not possible to increase production of sugar to a figure higher than the production during the war period. This was due, however, to several bottle-necks, namely, a decrease in the supply of cane in suitable quantities, of raw materials, of transport, etc. The Sugar Panel has recommended the expansion of the industry and has estimated that the demand of sugar will grow considerably in the years to come. We entirely agree with this view and hope and trust that the new National Government of India will take a living interest in the welfare and well-being of this industry and

enable it to expand it in a suitable manner all over the country, thus enabling the various Provinces to take their due share in the further development of the industry.

We also trust that the Government of India will spend *liberally* on research work with a view to decreasing the cost of production of sugar in the country and thus enable India to occupy an important place among the sugar producing countries of the world. A well-planned policy is absolutely essential for a thorough reorganisation of the industry.

We are convinced that the industry will expand considerably during the next decade and be in a position to cater for the increased demand of both sugar and *gur*, which are bound to follow from the execution of plans for the economic development of India, and also for exports of sugar in reasonable quantities to the neighbouring countries which have been deprived of sugar from their normal suppliers of sugar. We also feel strongly that the State should evince the greatest concern for safeguarding and supporting this industry which has stood by the country during the war period and has made available supplies of sugar and *gur* at reasonable rates, without profiteering and even without improving its own financial condition, by making unconscionably large profits, in appreciation of the effects of such a policy on the minds of the general consumer who has enabled the establishment of this industry, under the impetus of a liberal tariff protection granted by the State 15 years ago. There is no doubt that the industry has served the country well* and it would be the bounden duty of the Government and Legislatures to look after this industry, which has responded so magnificently to the country's call and has amply justified the policy of protection, in the years to come, and to concert measures for its further development, in a manner which would ensure the welfare of the agriculturists, and guarantee a fair return to the industrialists.

---

* *Vide* Mr. M. P. Gandhi's "Problems of Sugar Industry in India—Scope and Prospects of Re-organisation in the Post-War Period", being a comprehensive and critical survey of the industry since the grant of protection in 1932, and outlining the scope of optimum production and consumption of sugar in India in the post-war period, with a foreword by Sir Purshotamdas Thakurdas, K.B.E., C.I.E., pp. 425; price Rs. 12, December 1945.

We invite your particular attention to:—

(1) Statistical Tables, (pp. i to xxxiv),

(2) current sugar prices, effective from 23rd October 1946, on page xxxiii,

(3) pages 75 to 86, wherein have been discussed in detail—

(*a*) the question of the necessity of concentration of efforts for encouragement of heavy yielding varieties of cane in preference to quality cane, with the avowed object of getting more sugar per acre in India in the larger interests of the country,

(*b*) the question of the necessity of varying minimum prices of cane according to the variety and sucrose contents (as against the present method of paying by weight alone, irrespective of quality),

(4) economic importance of ratoon canes, and

(5) the question of reduction of cultivation costs of sugarcane generally.

DO PLEASE HAVE A LOOK

AT

- DO YOU KNOW THAT? (pages xxxi–xxxii)
- STATISTICAL TABLES (pages i to xxxiv)
- PREFACE
- VARIED ADVERTISEMENTS

You are sure to find something of interest, profit, and amusement!

15-11-1946. M. P. GANDHI.

APPENDIX

LIST OF SUGAR MILLS IN INDIA AND BURMA

WORKING AND PROJECTED

(1945-46)

THOROUGHLY REVISED AND BROUGHT UP-TO-DATE

◈ If you have any alterations to suggest, please write to us at once.
◈ They can be incorporated in the next year's *Annual*.

◈Please look at the last page (page 32) for proposed additions to the existing sugar mills. It will interest you.

Publishers :— **GANDHI & CO.** (*Publishers*),
Jan Mansion, Sir Pherozeshah Mehta Road,
FORT-BOMBAY

Telegrams : "KEEN", BOMBAY.

Telephone: *Office* : 25961 ; 24047
Res. : 43926

DETAILED LIST OF SUGAR MILLS (VACUUM PAN) IN INDIA (1945-46)

(Including Gur Refineries)

EXPLANATION :—

Asterisk in the last but one column denotes mills which have also got Gur-refining plants.

† *Mills marked thus did not work during 1944-45 season.*

‡ „ „ „ *are reported to be under construction.*

"S" = Sulphitation. "DS" = Double Sulphitation. "C" = Carbonatation. "DC" = Double Carbonatation.

Name of Factory, with full name and address of Managing Agents or Proprietors	*Location*	*District*	*Nearest Railway Station*	*Nearest Steamer Station*	*Daily cane-crushing capacity (tons)*	
		BENGAL				
1. North Bengal Sugar Mills Co., Ltd., M/A. M/S. Soorajmull Nagarmull, 61, Harrison Road, Calcutta. Tele { Grams: Sugar, Calcutta. Phone: B. B. 61.	Gopalpur. (Tel. Sugar, Gopalpur, Rajshahi.)	Rajshahi.	Gopalpur, B. & A. R.	Saraghat.	1250*	DS
2. †Setabganj Sugar Mills, Ltd., M/A. M/S. Soorajmull Nagarmull, 61, Harrison Road, Calcutta. Tele { Grams: Sugar, Calcutta. Phone: B. B. 61.	Setabganj. (Tel. Sugar, Setabganj, Dinajpur.)	Dinajpur.	Setabganj, Do.	Manihari.	800*	DS
3. †Shree Radha Krishna SugarMills, Ltd., 138, Harrison Road, Calcutta. Tele { Grams: Sugarsweet, Cal. Phone: B. B. 2203.	Beldanga. (Tel. Sugarsweet, Beldanga.)	Murshidabad.	Beldanga, Do.	Lalgola. B. & A. R.	650/750	DS
4. The Ramnugger Cane & Sugar Co., Ltd., M/A. M/S. Anderson, Wright & Co., 7, Wellesley Place, Calcutta. Tele { Grams: Amasis, Calcutta. Phone: Calcutta, 4300.	Plassey P.O.	Nadia.	Plassey, Do.	Do.	500/700	DS

5.	Carew & Co., Ltd., M/A. M/S. Lyall, Marshall & Co., 4, Fairlie Place, Calcutta. Tele { Grams: Ghat, Calcutta. Phone: Calcutta 168.	Darsana.	Do.	Darsana,	Do.	Do.	1500	DS
6.	†The Deshbandhu Sugar Mills, Ltd., M/A. The Industrial Agency, 58, Patuatuly, Dacca. (Tel. Deshbandhu, Dacca)	Charsindur.	Dacca.	Ghorashal (Flag)	Do.	Sultanpur-ghat.	250	DS
7.	†Kaligunj Sugar Mills, Ltd., M/D. Seth Pannalal Kothari, Head Office: 370, Upper Chitpur Road, Calcutta. (Phone: B. B. 2789).	Kaligunj P. O. (Tel. Chinikul, B. & A. Arikhola.)	Dacca.	Arikhola,	Do.	Ronaldsay Ghat, Kaliganj.	150	DS
8.	Das Sugar Corporation, Ltd., M/A. Dass Brothers, 29, Strand Road, Calcutta. Tele { Grams: Marvellous, Cal. Phone: Calcutta 3385 (3 lines).	P. O. Kishorganj. (Tel. Dayamayee, Kishorganj.)	Mymen-singh.	Kishorganj,	Do.	...	400	DS
9.	Rajluxmi Sugar Mills, M/A. Kartick Bose & Sons, Dr. Bose's Laboratory, Ltd., 45, Amherst Street, Calcutta. Tele { Grams: Lactic, Calcutta. Phone: B. B. 415.	Maitra Bagan, Basirhat.	24 Parganas.	Maitra Bagan Ry. Siding, B. B. L. R.		...	75	S

BIHAR

1.	Sakri Sugar Factory of The Durbhanga Sugar Co., Ltd., Registered Office: Lohat P.O., Dist. Darbhanga. Tele { Grams: Sugar, Lohat. Phone: Darbhanga 53A.	Sakri P. O. (Tel. Sakri, Factory, Sakri, Telephone: Darbhanga 53.)	Darbhanga.	Sakri,	O. & T. Rly.	Semaria Ghat.	700	S

Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
2. Lohat Sugar Factory of The Durbhanga Sugar Co., Ltd., Registered Office: Lohat P.O., Dist. Darbhanga. Tele { Grams: Sugar, Lohat. Phone: Darbhanga 53A.	Lohat P. O. (Tel. Lohat Factory, Lohat. Telephone: Darbhanga 53A.)	Darbhanga.	Pandaul, O. & T. Rly. (Goods: Lohat Siding.)	Semaria Ghat.	1300	S
3. Ryam Sugar Co., Ltd., M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Ryam Factory P. O. (Tel. Ryam Factory, Tarsarai.)	Do.	Tarsarai, O. & T. Rly.	Do.	779	C
4. Samastipur Central Sugar Co., Ltd., M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Samastipur. (Tel. Central, Samastipur.)	Do.	Samastipur, Do.	Do.	795	S
5. New India Sugar Mills, Ltd., M/A. Cotton Agents, Ltd., 8, Royal Exchange Place, Calcutta. Tele { Grams: Cotagent, Calcutta. Phone: Calcutta 562.	Hassanpur Rd., P. O. Hassanpur Sugar Mills, (Tel. "Birla", Hassanpur Sugar Mills.)	Do.	Hassanpur Road, Do.	Do.	1100/1300	DS
6. Motipur Sugar Factory, Ltd., M/D. Seth Haji Abdul Rahim Oosman, 2, Rajmohan Street, Calcutta. Tele { Grams: Muslim, Calcutta, Phone; B. B. 2460.	Motipur. (Tel. Sattar, Motipur & Talabgur & Muzaffarpur, Phone Muzaffarpur 65.)	Muzaffarpur.	Motipur, Do.	Paleza Ghat.	1000/1300	DC

7. Belsund Sugar Co., Ltd., M/A. James Finlay & Co., Ltd., 1, Clive Street, Calcutta. Tele { Grams: Mercator, Calcutta. Phone: Calcutta, 4600.	Righa P. O. (Tel. Mitha, Righa.)	Do.	Righa	Do.	Semaria Ghat	850	DS
8. Champarun Sugar Co., Ltd., Barrah Factory, M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Bara-Chakia P. O. (Tel. Cane, Bara-Chakia.)	Champaran.	Chakia,	Do.	Paleza Ghat.	932	C
9. Shree Hanuman Sugar Mills, Ltd., M/A. Shree Hanuman Investment Co., Ltd., 178, Harrison Road, Calcutta. Tele { Grams: Hopwoda, Calcutta. Phone: B. B. 4501. (3 Lines).	Motihari. (Tel. Sugar, Motihari. Telephone No. 60.)	Do.	Motihari,	Do.	Do.	780	DS
10. The Sugauli Sugar Works, Ltd., M/D. Mr. Md. Hanif & Mr. Amjadali, 3 & 5 Rajmohan Street, Calcutta.	Sugauli. (Tel. Taj, Sugauli.)	Do.	Sugauli,	Do.	Do.	900	DS
11. Motilal Padampat Sugar Mills Co., Ltd., H. O. Kamla Tower, Cawnpore. Tele { Grams: Motipat, Cawnpore. Phone: 2532-34	Majhaulia. (Tel. Motipat, Majhaulia.	Do.	Majhaulia,	Do.	Do	1000	DS
12. Champarun Sugar Co., Ltd., Chanpatia Factory, M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Chanpatia. (Tel. Chansuco, Chanpatia.)	Do.	Chanpatia,	Do.	Do.	870	S

	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
13.	S. K. G. Sugar, Ltd., M/A. Dalmia Jain & Co., Ltd., Dalmianagar, Sahabad. Tele { Grams: Dalmiajain, Dalmianagar. Phone: Dalmianagar 8.	Pakri Lauriya P. O. (Tel. Dalmiajain, Lauriya.)	Champaran.	Chanpatia, O. & T. Rly.	Paleza Ghat.	650	DS
14.	Harinagar Sugar Mills Ltd., M/A. Narayanlal Bansilal, 207, Kalbadevi Road, Bombay 2. Tele { Grams: Maryada, Bombay. Phone: Bombay 30841.	P. O. Harinagar Sugar Mills. (Tel. Maryada, Ramnagar, Champaran.)	Do.	Harinagar, Do.	Do.	1400/1500	DS
15.	The New Swadeshi Sugar Mills, Ltd., M/A. Cotton Agents, Ltd., (1) 8, Royal Exchange Place, Calcutta. Tele { Grams: Cotagent, Calcutta. Phone: Calcutta 562. (2) Imperial Bank Bldg., Bank St., Bombay. Tele { Grams: Lucky, Bombay. Phone: Bombay 27046.	Narkatiaganj. (Tel. Birla, Narkatiagunj.)	Do.	Narkatiaganj, O. & T. Rly.	Do.	900	DS
16.	Ganga Devi Sugar Mills, Ltd., M/A. Marwari Brothers, Naraipore, Bagaha P. O. (Tele. Ganga, Bagaha).	Naraipur P. O.	Do.	Bagaha, Do.	Do.	650	DS
17.	Gaya Sugar Mills, Ltd., Managing Director, Mr. Guru Sharan Lal. 15, Clive Street, Calcutta. Telephone: Calcutta, 1457.	Guraru, P. O. Guraru Mills. (Tel. Sugarmills, Gaya Telephone: Gaya 78.)	Gaya.	Guraru, E.I.R.	Patna.	850	DS

18.	The South Bihar Sugar Mills, Ltd., M/A. N. K. Jain & Company, Ltd., 9, Clive St., Calcutta. Tele { Grams: Ibagencies, Calcutta. Phone: Calcutta. 5977.	Bihta. (Tel. Sugar, Bihta. Phone: Dinapore 130.)	Patna.	Bihta, Do.	Digha.	1200	DS
19.	Mohini Sugar Mills, Ltd., M/A. M/S. Karamchand Thapar & Bros. Ltd., 5, Royal Exchange Place, Calcutta. Tele { Grams: Spiritual, Calcutta. Phone: Cal. 2331/2.	Bikramgunj. P. O. Bikramgunj. (Tel. Spiritual, Bikramganj.)	Shahabad.	Bikramganj, A. S. L. Rly.	Sinha 40 Miles Buxar 40 Miles.	700	DS
20.	Rohtas Industries, Ltd., M/A. Dalmia Sabharwal Jain & Co., P. O. Dalmianagar (Shahabad.) Tele { Grams: Dalmiyajain, Dalmianagar. Phone: Dalmianagar 8.	P. O. Dalmia- nagar.	Do.	Dehri-on-Sone, E. I. R.	Buxar.	1800	DC DS
21.	†Ganga Deshi Sugar Factory, Ltd., M/D. Behari Lal, Buxar, Tel. Sugar, Buxar.)	Buxar. P. O. Buxar. Gajadharganj.	Shahabad.	Buxar, Do.	Buxar.	100*	S
22.	Sitalpore Sugar Works, Ltd., M/D. Ghosh & Dutt, (1) 93 A, Dharamtolla Street, Calcutta, Telephone: Cal. 2622. (2) Indian Press Buildings, Allahabad. (Local Office: Sahibganj, Chapra).	Sitalpore. (Tel. Kamala, Sitalpore. O. & T.)	Saran.	Sitalpore, O. & T. Rly.	Baghi.	800	DS
23.	Cawnpore Sugar Works, Ltd., Marhowrah Factory, M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Marhowrah (Tel. Marsuco, Marhowrah.)	Do.	Marhowrah, Do.	Revelganj	939	DC

No.	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
24.	†Maharajganj Sugar Factory, Prop. M/S. Tulsiram Bhagwandas, 61, Keshab Chandra Sen Street, Calcutta. Telephone: B.B. 311.	Maharajganj.	Saran.	Maharajganj, O. & T. Rly.	Revelganj	400	DS
25.	The Behar Sugar Works of the Industrial Corporation, Ltd., M/A. Bakubhai Ambalal & Co., P. O. Box 28, Ahmedabad. Tele { Grams: Indus, Ahmedabad. Phone: Ahmedabad 5001. H. O. Bastion Road, Fort, Bombay. Tele { Grams: Indus, Bombay. Phone: Bombay 22497.	Pachrukhi (Tel. Indus, Pachrukhi.)	Do.	Pachrukhi Do.	Palezaghat,	1100	DC
26.	New Savan Sugar & Gur Refining Co., Ltd., M/A. Andrew Yule & Co., Ltd., 8, Clive Row, Calcutta. Tele { Grams: Yuletide, Calcutta. Phone: Calcutta 5280.	Siwan. (Tel. Sugar, Siwan.)	Do.	Savan, Do.	Siswan, Ghat O. A.	900	DS
27.	Indian Sugar Works, Mr. Lutf Ahmed, Receiver, Mr. M. A. Razzaque, M/P. P. O. Siwan, Dist. Saran. (Tel. Deen, Siwan.)	Siwan.	Do.	Do. Do.	Savan, O. A.	700	DS
28†	Siwan Deshi Sugar Factory, Prop. Messrs. Noori Mian & Co., Bhatni (Gorakhpur).	Do.	Do.	Do. Do.	Do.	Gur only.	
29.	Bharat Sugar Mills, Ltd., M/A. Cotton Agents, Ltd., 8, Royal Exchange Place, Calcutta. Tele { Grams: Cotagent, Calcutta. Phone: Calcutta 562.	Sidhwalia. (Tel. Birla, Sidhwalia.)	Do.	Sidhwalia, Do.	Revelganj & Palezaghat.	650	DS

30.	Sasa Musa Sugar Works, Ltd., M/A. Mousell & Co., Ltd., P. O. Box 2164, Calcutta. Tele { Grams: Diogenes, Calcutta. Phone: Calcutta 2666.	Sasa Musa. (Tel. Factory, Sasa Musa.)	Do.	Sasa Musa, Do.	Palezaghat.	600	DS
31.	The Vishnu Sugar Mills, Ltd., M/A. Bilasrai Banarsilal & Co., Agakhan Building, Dalal Street, Fort, Bombay. (Tel. Brijbilas, Bombay.)	Gopalganj. (Tel. Vishnu, Gopalganj.)	Do.	Harkhua, Do.	Revelganj.	800	DS
32.	S. K. G. Sugar, Ltd., M/A. Dalmia Jain & Co., Ltd., P. O. Dalmianagar, Dist. Shahabad. Tele { Grams: Dalmiajain, Dalmianagar. Phone: Dalmianagar 8.	Hathua, P. O. Mirganj. (Tel. "Dalmiajain", Mir- ganj, Phone: Hathua 4 & 5.)	Do.	Hathua, Do.	Palezaghat.	1400/1500	DS

UNITED PROVINCES

1.	Purtabpore Co., Ltd., M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Mairwa. (Tel. Sucrose, Mairwa.)	Gorakhpur.	Mairwa, Do.	Revelganj.	784	DC
2.	Noori Sugar Works, Prop. Noori Mian & Co., Bhatni. (Tel. Noori, Bhatni.)	Bhatni.	Do.	Bhatni, Do.	Barhaj.	726	DS
3.	Shree Sitaram Sugar Co., Ltd., M/A. Karamchand Thapar & Bros., Ltd., 5, Royal Exchange Place, Calcutta. Tele { Grams: Spiritual, Calcutta. Phone: Calcutta. 2331/2.	Baitalpur, P. O. Deoria. (Tel. Spiritual, Baitalpur, Deoria.	Do.	Baitalpur, Do	Barhaj.	861	DS

Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
4. Cawnpore Sugar Works, Ltd., Gauri Factory, M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams : Begg, Cawnpore. Phone : Cawnpore 2313.	Gauribazar, P. O. (Tel. Gaursuco, Gauribazar.)	Gorakhpur.	Gauribazar, O. & T. Rly.	Barhaj.	738	DS
5. Deoria Sugar Mills, Ltd., M/A. Karamchand Thapar & Bros., Ltd., 5, Royal Exchange Place, Calcutta. Tele { Grams : Spiritual, Calcutta. Phone : Calcutta 2331/2.	Deoria. (Tel. Spiritual, Deoria.)	Do.	Tahsil Deoria, O. & T. Rly.	Do.	900	DS
6. Sind National Sugar Mills, Ltd., M/A. The Sindhi & Co., Ltd., Deoria, Dist. Gorakhpur.	Deoria. (Tel. National, Deoria.)	Do.	Do. Do.	Barhaj.	351	DS
7. Saraya Sugar Factory, Managing Partner, S. Surendra Singh Majithia, Sardarnagar, (Tel. Majithias, Sardarnagar).	Sardarnagar.	Do.	Sardarnagar, O. & T. Rly.	Barhaj.	2129	DS
8. Diamond Sugar Mills, Ltd., M/A. Murarka & Sons, Ltd., 4-E, Dalhousie Square, Stephen House, Calcutta. Tele { Grams : Canesugar, Calcutta. Phone : Calcutta 1003 & 1349.	Pipraich. (Tel. Diamond, Pipraich, O. & T.)	Do.	Pipraich, Do.	Do.	700/800	DS
9. Pipraich Sugar Mills, Ltd., M/A. Mr. Mohammad Ashfaq, B.A., General Manager,	Pipraich. (Tel. Pipraichmill, Pipraich. Phone: Gorakhpur 25.)	Do.	Pipraich, Do	Do.	300	S
10. The Shankar Sugar Mills, Ltd., M/A. Inderchand Hariram, Captainganj.	Captainganj. (Tel. Shankarji, Captainganj.)	Do	Captainganj, Do.	Do.	896	DS

11.	The Punjab Sugar Mills, Co., Ltd., Managers, Messrs. Narang Bros. & Co., Ltd., 3, Montgomery Road, Lahore. Tele { Grams : Narang, Lahore. Phone : Lahore 3717.	Ghughli. (Tel. Factory, Ghughli O. T.)	Do.	*Ghughli*	Do.	Do.	869	DS
12.	Mahabir Sugar Mills, Co. Ltd., M/A. Dwarkadas Baijnath, Siswa Bazar.	Siswa Bazar. (Tel. Mahabirji, Siswa Bazar.)	Do.	Siswa Bazar,	Do.	Do.	620	DS
13.	The Vishnu Pratap Sugar Works, Ltd., M/D. Raja Bahadur Raja Braj Narain Singh, C.B.E., Padrauna Raj. (Tel. Sugar, Rajabazar, Khadda.)	Khadda.	Do.	Khadda,	Do.	Do.	761	DS
14.	The Lakshmi Devi Sugar Mills, Ltd., M/A. Messrs Agarwal & Co., P. O. Chhitauni. Telephone : Padrauna 3.	Chhitauni	Do.	Chhitauni,	Do.	Do.	700/750	DS
15.	Ishwari Khetan Sugar Mills, Ltd., M/A. Devidutt Surajmull, Padrauna, Gorakhpur. Tele { Grams : Khetan, Padrauna. Phone : Padrauna 3.	Lakshmiganj. (Tel. Khetan, Lakshmiganj.)	Do.	Lakshmiganj,	Do.	Do.	732*	S
16.	The Ramkola Sugar Mills, Co., Ltd., H. O. Nawashahr (Hazara), *Via* Abbottabad. Tele { Grams : Timber, Nawashahr, Hazara. Phone : Abbottabad 31.	Ramkola, (Tel. Sugar, Ramkola, Tele: Padrauna 18.)	Do.	Ramkola,	Do.	Revelganj.	900	DS
17.	Padrauna Rajkrishna Sugar Works, Ltd., M/D. Kr. Rudra Pratap Narain Singh, "Jagdis Garh", Padrauna. Tele { Grams : Krishna, Padrauna. Phone : Padrauna 14.	Padrauna. (Telephone No. 6.)	Do.	Padrauna,	Do.	Barhaj	800	S

No.	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
18.	Maheshwari Khetan Sugar Mills, Ltd., M/A. Messrs. Devidutt Chaturbhuj, P. O. Ramkola. (Tel. Khetan, Ramkola.)	Ramkola. (Telephone: Padrauna 4.)	Gorakhpur.	Ramkola, O. & T. Rly.	Barhaj.	777	DS
19.	Jagadish Sugar Mills, Ltd., M/A. Raja Bahadur Brijnarayan Singh & Co., Padrauna. Tele { Grams: Jagadish, Padrauna. Phone: Padrauna 15.	Kathkuiyan, Padrauna P. O.	Do.	Kathkuiyan, Do.	Do.	400	DS
20.	The United Provinces Sugar Co., Ltd., M/A. James Finlay & Co., Ltd., 1, Clive Street, Calcutta. Tele { Grams: Mercator, Calcutta. Phone: Calcutta 4600.	Seorahi P. O. (Tele. Chini, Seorahi)	Do.	Tamkohi Road. Do.	Do.	925	DS
21.	Ganesh Sugar Mills, Ltd., M/A. Poddar Jaipuria & Co., 51, Vivekananda Road, Calcutta. Tele { Grams: Jaipuria, Calcutta. Phone: Burra Bazar 4100 & 5557.	P. O. Anandnagar. (Tele. Ganesh Pharenda, O. & T.)	Do.	Pharenda, Do.	Barhaj.	900	DS
22.	Ledi Sugar Factory, Lessee: Shrimati Ramlali Devi, P. O. Nichlaul (Gorakhpur.)	Ledi P. O. Nichlaul.	Do.	Siswa Bazar, Do.	Do.	80	DS
23.	The Madho Kanhaya Mahesh Gauri Sugar Mills, Ltd.	Munderwa. (Tele. Jagdish, Munderwa.)	Basti.	Munderwa, Do.	Do.	650/800	DS
24.	Basti Factory of The Basti Sugar Mills Co., Ltd., M/A. Narang Bros. & Co., Ltd., 3, Montgomery Road, Lahore. Tele { Grams: Narang, Lahore. Phone: Lahore 4614.	Basti. (Tel. Factory, Basti.)	Do.	Basti. Do.	Ajodhya Ghat.	875/900	DC

25.	Walterganj Factory of The Basti Sugar Mills Co., Ltd., M/A. Narang Bros. & Co., Ltd., 3, Montgomery Road, Lahore. Tele { Grams: Narang, Lahore. Phone: Lahore 4614.	Walterganj, (Tel. Sugar, Walterganj.)	Do.	Walterganj,	Do.	Do.	700/800	DS
26.	Barhni Sugar Mills, Proprietors: The Delhi Cloth and General Mills Co., Ltd., Delhi. Tele { Grams: Yarn, Delhi. Phone: Delhi 5243.	Barhni P. O. Ramduttganj. (Tel. Sugar, Barhni, O. & T.)	Do.	Barhni,	Do.	Barhaj.	800/1000	DS
27.	Shree Anand Sugar Mills, Ltd., M/A. Agarwal Sugar Agents, Ltd., 51, Vivekananda Road, Calcutta. Tele { Grams: Jaipuria, Calcutta. Phone: B. B. 4100 & 5557.	Khalilabad. (Tele. Shreeanand, Khalilabad.):	Do.	Khalilabad,	Do.	Do.	650	DS
28.	†Shree Sheodayal Sugar Mills, P. O. Sheodayalganj (Gonda). Tel. Mansinghka, Nawabganj (Gonda).	P. O. Sheodayal-ganj.	Gonda.	Katra,	Do.	Do.	100/150	DS
29.	The Seksaria Sugar Mills, Ltd., M/A. Govindram Ramnath & Co., Seksaria Chambers, 139, Medows Street, Fort, Bombay. Tele { Grams: Fairtrade, Bombay. Phone: Bombay 34627.	Babhnan. (Tel. Seksariaco, Babhnan.)	Do.	Babhnan,	Do.	Do.	800	DS
30.	Nawabganj Sugar Mills Co., Ltd., M/A. Narang Bros. & Co., Ltd., 3, Montgomery Road, Lahore. Tele { Grams: Narang, Lahore. Phone: Lahore 4614 and 5717.	Nawabganj. (Tel. Sugarmills, Nawabganj, Gonda.)	Do.	Nawabganj,	Do.	Ajodhya Ghat.	1850	DS

	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
31.	Balrampur Sugar Co., Ltd., Balrampur Factory, M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Balrampur. (Tel. Balsuco, Balrampur. Telephone: Balrampur 37.)	Gonda.	Balrampur, O. & T. Rly.	Barhaj.	768	DS
32.	Balrampur Sugar Co., Ltd., Tulsipur Factory, M/A. Begg, Sutherland & Co., Ltd., P. O. Box No. 21, Cawnpore. Tele { Grams: Begg, Cawnpore. Phone: Cawnpore 2313.	Tulsipur. (Tel. Talsuco, Tulsipur.)	Do.	Tulsipur, Do.	Ajodhya Ghat.	746	S
33.	R. B. Seth Lachmandass Mohanlal & Sons Sugar Mills, Head Office: Shahalmi Gate, Lahore. Tele { Grams: Laxmansons. Phone: Lahore 3709.	P. O. Jarwal Rd., (Tel. Laxmansons, Jarwal Road. Telephone: Gonda 16.)	Bahraich.	Jarwal Rd., Do.	Ajodhya Ghat	860	DS
34.	The Burhwal Sugar Mills Co., Ltd., Managing Directors: Durga Sanker Dayaram, Collectorganj, Cawnpore. Tele { Grams: Ganeshji, Cawnpore. Phone: Cawnpore 2758.	Burhwal. (Tel. Ganeshji, Burhwal.)	Barabanki.	Burhwal, Do.	Do.	650*	DS
35.	Seth Ramchand & Sons Sugar Mills, Lucknow.	Aishbagh. (Tel. Malaco, Lucknow. Phone: Lucknow 605.)	Lucknow.	Aishbagh, Do. Lucknow, E. I. R.	Do.	793*	DS
36.	Ratna Sugar Mills Co., Ltd., M/A. Kashiprasad & Co., 107, Streat Field Road, Benares City. (Tel. Ratna, Benares.)	Shahganj, (Tel. Ratna. Shahganj, Jaunpur.)	Jaunpur.	Shahganj, Do. & E. I. R.	Balia.	751	DS

37. †Shree Krishna Deshi Sugar Works, Lessees: J. Gupta & Co., Azmatgarh Palace, Benares. Tele { Grams: Shree, Benares. Phone: Benares 151.	Jhusi. (Tel. Factory, Jhusi, Phone: Allahabad 269.)	Allahabad.	Jhusi, O. & T. Rly.	Do.	400*	DS
38. †Tribeni Deshi Sugar Works, Lessee: L. Jainarain Prasad Agarwal, Naini. (Tel. Madho, Naini).	Naini.	Do.	Naini, E.I.R. & G.I.P.R.	Buxar.	200*	S
39. The Lakshmi Sugar & Oil Mills., Ltd., M/D. Rai Bahadur Seth Bansidhar. Head Office: Hardoi.	Hardoi. (Tel. Lakshmi, Hardoi.)	Hardoi.	Hardoi, E.I.R.	Do.	1565	DS
40. The Seksaria Biswan Sugar Factory, Ltd., M/A. Govindram Bros., Ltd., Seksaria Chambers, 139, Medows St., Fort, Bombay. (Tel. "Fairtrade," Bombay.)	Biswan. (Tel. Factory, Biswan.)	Sitapur.	Biswan, O. & T. Rly.	Ajodhya Ghat.	1200 (Double Tandem)	S
41. The Oudh Sugar Mills, Ltd., M/A. Cotton Agents, Ltd., (1) Imperial Bank Bldg., Bank St., Bombay. Tele { Grams: Lucky, Bombay. Phone: Bombay 27046 & 33745 } 4 lines. (2) 8, Royal Exchange Place, Calcutta. Tele { Grams: Cotagent, Calcutta. Phone: Calcutta 562.	Hargaon. (Tel. Osmills, Hargaonsugar Mills. Telephone: Sitapur 2.)	Sitapur.	Hargaon, O. & T. Rly.	Ajodhya Ghat.	1925	DS
42. Aira Sugar Factory, Prop.: Indra Singh & Sons, Ltd., Tatanagar. Tele { Grams: Indrasinghsons, Tatanagar. Rhone: Tatanagar 18.	Khamaria, P.O. Aira Estate. (Tel. "Aira", Lakhimpore- Kheri.)	Kheri.	Lakhimpur- Kheri, O. & T. Rly.	Bahram Ghat.	650	DS

	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
43.	The Lakshmiji Sugar Mills Co., Ltd., M/D. Seth Kishorilal Saheb, Maholi (Dt. Sitapur).	Maholi. (Tel. Lakshmi, Maholi. Phone: Sitapur 5.)	Sitapur.	Maholi, E.I.R.	Buxar.	1250	DS
44.	The Hindusthan Sugar Mills, Ltd., M/A. Bachhraj & Co., Ltd., Jehangir Wadia Building, 51, Mahatma Gandhi Road, Fort, Bombay. Tele { Grams: Shree, Bombay. Phone: Bombay 30027.	Golagokarannath. (Tel. Shree, Golagokarannath. Telephone No. 1, Golagokarannath.)	Kheri	Golagokaran-nath. O. & T. Rly.	Bahram Ghat.	1950	DS
45.	Rosa Sugar Works & Distillery of Carew & Co., Ltd., M/A. Lyall Marshall & Co., 4, Fairlie Place, Calcutta. Tele { Grams: Ghat, Calcutta. Phone: Cal. 168.	Rosa. (Tel. Carew, Rosa. Telephone 33.)	Shahjahan-pur.	Rosa Jn., E.I.R.	...	700*	DS
46.	H. R. Sugar Factory, Ltd., M/D. Sahu Ram Bharose Lal Sahib, Nekpur, Bareilly.	Bareilly. (Tel. Sugar, Bareilly. (Phone: 33.)	Bareilly.	Bareilly Jn., E.I.R. & O. & T. Rly.	Buxar.	902	DS
47.	The Kesar Sugar Works, Ltd., M/A. Kilachand Devchand & Co., 45/47, Apollo Street, Bombay. Tele { Grams: Seeds, Bombay. Phone: Bombay 26506.	Baheri. (Tel. Kesar, Baheri. Telephone No. 125, Bareilly Exchange)	Bareilly.	Baheri, O. & T. Rly.	Barhaj.	1280	DS
48.*	L. H. Sugar Factories and Oil Mills, Ltd., Pilibhit, M/D. Raja Radha Raman, Pilibhit. (Telephone: Pilibhit 32 and 26.)	Pilibhit. (Tel. Crystal, Pilibhit. Phone: Pilibhit 32.)	Pilibhit.	Pilibhit Do.	Barhaj.	1750 (Double Tandem).	S

Both the units working.

49.	Upper Ganges Sugar Mills, Ltd., M/A. Cotton Agents, Ltd., 8, Royal Exchange Place, Cal. Tele { Grams: Cotagent, Calcutta. Phone: Calcutta 562.	Sheohara. (Tel. Birla, Sheohara.)	Bijnor.	Sheohara, E.I.R.		Buxar.	1300	DS
50.	Seth Shiv Prasad Banarsidas Sugar Mills, M/A. Seth Kundanlal & Puranchand.	Bijnor. (Tel. Aggarwal, Bijnor.)	Do.	Bijnor,	Do.	Do.	1100/1200	DS
51.§	The Ganga Sugar Works, M/A. The Ganga Glass Works, Balawali, Bijnor.	Balawali	Do.	Balawali	Do.	...	100 15/2	(Cane) (Gur)
52.	The Dhampur Sugar Mills, Ltd., M/D. R.S. Kr. Murli Manohar, 13 Civil Lines, Bareilly. (Telephone: Bareilly 53.)	Dhampur. (Tel. Sugarmills, Dhampur).	Do.	Dhampur,	Do.	Buxar.	900	DS
53.	The Vijai Sugar Corporation Ltd., M/D. Lala Budhram Kuthiala, Doiwala, E. I.	Doiwala(Tel. Vijai, Doiwala. Phone: Dehra Dun 564.)	Dehra Dun.	Doiwala,	Do.	Karachi.	400*	DC/DS
54	The Ganga Sugar Corporation Ltd., College Road, Rawalpindi, Chairman: R.B. L. Isher Dass, M.A., L.L.B., M.L.A. Tele { Grams: Gansuco, Rawalpindi. Phone: Rawalpindi 641.	Deoband. (Tel. Sugar, Deoband. Telephone: Deoband 23.)	Saharanpur.	Deoband, N.W.R.		Buxar.	800/1000	DC/DS
55.	Rai Bahadur Narain Singh Sugar Mills, Ltd., M/D. Sardar Rajdev Singh, 2, Curzon Road, New Delhi. (Telephone: Delhi 7617.)	Lhaksar. (Tel. Sugar, Lhaksar Jn., E. I. Tele: Roorkee 35.)	Do.	Lhaksar, E.I.R.		...	1250	DS

§ Factory is not working since 1937, it is not certain whether it will work at all.

	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
56.	The Lord Krishna Sugar Mills, Ltd., Regd. Office: 17, Lawrence Road, Lahore, M/D.: Seth Benarsi Dass Gupta. Tele { Grams: Bindal, Lahore. Tele { Phone: Lahore 2865.	Saharanpur. (Tel. Krishna, Saharanpur. Telephone: Saharanpur 3 and 3A.)	Saharanpur.	Saharanpur, N.W.R.	Buxar.	1250	DS
57	Upper Jumna Swadeshi Sugar Mills Co., Ltd., M/A. Hariraj Swarup Rajendralal & Brothers, Muzaffarnagar. Tele { Grams: Swesugmill, Muzaffarnagar. Tele { Phone: Muzaffarnagar 32.	Mansurpur. (Tel. Swesugmill, Mansurpur. Telephone: Mansurpur 44.)	Muzaffarnagar.	Mansurpur, Do.	Karachi.	1000/1200	DS
58.	Upper India Sugar Mills, Ltd., M/D. P. Srikrishna Deva Bhargava, M/A. Mitra Mandal, Khatauli. Tele { Grams: Sugar, Khatauli. Tele { Phone: Muzaffarnagar 96.	Khatauli. (Telephone: Muzaffarnagar 96.)	Do.	Khatauli Do.		1149/1400	DS
59.	Amritsar Sugar Mills Co., Ltd., M/A. Amar Singh & Co., Amritsar (Punjab). Tele { Grams: Refiners, Amritsar. Tele { Phone: Amritsar 597.	Rohanakalan. P.O. Rohanamills. (Tel. Refiners, Muzaffarnagar. Phone: Muzaffarnagar 41).	Do.	Rohanakalan, Do.	Buxar.	1200	DS
60.	Upper Doab Sugar Mills, Ltd., M/A. Hariraj Swarup, Rajendralal Debi Prasad & Brothers, Muzaffarnagar. Tele { Grams: Swesugmill, Muzaffarnagar. Tele { Phone: Muzaffarnagar 85.	Shamli. (Tel. Sugarmills, Shamli. Telephone: Shamli 32.)	Muzaffarnagar.	Shamli, S.S.L.R.	Bombay	1400	DS
61.	Diwan Sugar Mills, Prop. Messrs. Dhanpatmal Diwanchand, Lyallpur (Punjab). (Tel. Dhanpat, Lyallpur.)	Sakhoti-Tanda. (Tel. Diwanmills, Sakhoti-Tanda, N.W.R. Phone: Muzaffarnagar 77.)	Meerut.	Sakhoti-Tanda, N.W.R.	Do.	716*	DS

62.	Daurala Sugar Works, Prop. The Delhi Cloth and General Mills Co., Ltd., Delhi. Tele { Grams : Yarn, Delhi. Phone : Delhi 5243.	Daurala. (Telephone : Meerut, 259.)	Do.	Daurala, Do.	...	1400	DC
63.	Jaswant Sugar Mills, Ltd., Managing Agent's Office : 3, Temple Road, Lahore.	Meerut City. (Telegrams : Godfearing. Telephone : Meerut 230.)	Do.	Meerut City, Do	Buxar.	650/1100	DS
64.	Ram Luxman Sugar Mills, Managing Props. : M/s. Dinanath Nanakchand, Chawri Bazar, Delhi. Tele { Grams : Ensey, Delhi. Phone : 5004. and R. S. Chiranjilal & Sons, Saddar Bazar, Delhi. Tele { Grams : Consult, Delhi. Phone : 5011.	Mohiuddinpur. (Telegrams : Sugarmills, Mohiuddinpur, N.W.R. Telephone : Meerut 365.)	Do.	Mohiuddinpur, Do.	Do.	600/800*	DS
65.	The Modi Sugar Mills, Ltd., M/A. Rai Bahadur Multanimal & Sons, Ltd., Modinagar.	Modinagar, Begamabad. (Tel. Modimills, Begamabad. Phone: Meerut 226)	Do.	Begamabad, Do.	...	1000	DS
66.	Simbhaoli Sugar Mills, Ltd., Chairman : Lt. Sardar Raghbir Singh Sandhanwalia, O.B.E. Tele { Grams: Sandhanwalia, Simbhaoli, E.I.R. Phone: Hapur, 77.	Simbhaoli, P. O. Baksar.	Do.	Simbhaoli E.I.R.	...	735	DS
67.	L. H. Sugar Factories & Oil Mill, Ltd., M/D. Raja Radha Raman Saheb, Pilibhit.	Kashipur. (Tel. Crystal, Kashipur.)	Naini-Tal.	Kashipur, O. & T. Rly.	Barhaj.	650	DS

Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
68. The Gokulnagar Sugar Mills Co., Ltd., M/A. Sir Gokulchand Narang & Co., Ltd., 3, Montgomery Road, Lahore. Tele { Grams: Narang, Lahore. Phone: Lahore 4614.	Kichha. (Tel. Sugar Factory, Kichha.)	Naini-Tal.	Gokulnagar, O.&T. Rly.	Barhaj.	800	DS
69. The Neoli Sugar Factory, *Prop.*: The Saraswati Sugar Syndicate, Ltd., P. B. No. 255, Lahore, Tele: Sucrose, Lahore. M/A. The Neoli Syndicate, Neoli, Dt. Etah.	Manpore Nagaria. P. O. Neoli, (Tel. Sucrose, Neoli, Etah.)	Etah.	Manpore Nagaria. Do.	Do.	873	DS
70. †The Standard Refinery & Distillery. Ltd., M/A. Karam Chand Thapar & Bros., 5, Royal Exchange Place, Calcutta. Tele { Grams: Spiritual. Phone: Calcutta 2331/2.	Unao.	Unao.	Unao, E.I.R. & O. & T. Rly.	Buxar.	Gur only 75	
71. †Kamlapat Motilal Gutaiya Sugar Mills, Prop.: Messrs. Kamlapat Motilal, P. B. 69, Cawnpore. Tele { Grams: Lalmoti, Cawnpore. Phone: 2573.	Masoda (Telegram: Lalmoti, Fyzabad.)	Fyzabad.	Masoda, E. I. Ry. K. M. G. Sugar Mills Siding, E. I. R.	Ajodhya Ghat.	Cane 1000 Gur 100	DS
72. Experimental Sugar Factory, Imperial Institute of Sugar Technology.	Nawabganj.	Cawnpore.	Rawatpur, B.B.&C.I. R.	Buxar.	34*	
73. †Baijnath Balmakund Sugar Mills, Prop.: Messrs. Bankey Beharilal Singhania, Lalbankey Street, Cawnpore. Tele { Grams: Lalbankey. Phone: Cawnpore 2489.	Anwarganj.	Do.	Anwarganj, B.B.&C.I.R.	Barhaj.	Gur Only 27	

74.	Amroha Sugar Factory, Prop.: The Ganesh Flour Mills Co., Ltd., Delhi. Tele { Grams: Ganesh Mill, Delhi. Phone: Delhi 6371.	Amroha. (Tel. Ganeshmill, Amroha.)	Moradabad.	Amroha,	E.I.R.	Buxar.	500	DS
75.	The Ajudhia Sugar Mills, Prop.: Lakshmiji Sugar Mills Co., Ltd., 24, Mozang Road, Lahore. Tele { Grams: Seth, Lahore. Phone: Lahore 2467.	P. O. Raja-Ka-Sahaspur, (Tel. Sugarmill, Moradabad. Phone: (1) Moradabad 79. (Factory) (2) Moradabad 98. (Residence) (Raja-Ka-Sahaspur Special line.)	Do.	Raja-Ka Sahaspur.	Do.	Do.	1305	DS

PUNJAB

1.	†The Gujranwala Sugar Mills, Co., Ltd., M/A. Narang Bros., Ltd., 3, Montgomery Road, Lahore., Singh & Co., Ltd., Civil Station, Gujranwala. Tele { Grams: Narang, Lahore. Phone: Lahore 4767.	Rahwali. (Tel. Sugarmill, Rahwali. Telephone: Gujranwala 64.)	Gujranwala.	Rahwali,	N.W.R	Karachi.	300/450	DS
2.	†The Amritsar Sugar Mills, Co., Ltd., M/A. M/S. Amarsingh & Co., P. O. H. & S. Factory, Amritsar. Phone 597.	Gr. Trunk Road, Amritsar. (Tel. Refiners, Amritsar)	Amritsar.	Amritsar,	Do.	Do.	Gur only 42 tons.	
3.	Saraswati Sugar Mills, D/I. Mr. D. D. Puri. Prop.: The Saraswati Sugar Syndicate Ltd. 4, McLeod Road, P. O. Box No. 255, Lahore. Tele { Grams: Sucrose, Lahore. Phone: Lahore 3034.	P. O. Abdullapur. (Telegram: Saraswati, Abdullapur. Telephone: Jagadhari 27.)	Ambala.	Jagadhari,	Do.	Buxar.	400	DC & DS
4.	†The Pattoki Sugar Works, Pattoki, Prop.: Seth C. K. Delliwala (Goa), Civil Lines, Bareilly, U. P.	Pattoki.	Lahore.	Pottoki,	Do.	...	100	

Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
ORISSA						
1. Aska Sugar Works & Distillery, Prop.: Messrs. Damodar Sahu and Brothers. (Tel. "Massecuite", Aska.)	Aska.	Ganjam.	Berhampur, B.N.R.	...	100/120	
2. Jeypore Sugar Co., Ltd., M/D. G. Subba Rao, B.SC., C.P.E. (Glasgow), Rayagada (Dist. Koraput.) (Tel. Jeysuco, Rayagada.)	Rayagada.	Koraput.	Rayagada, Do.	Vizagapatam.	250	DS
MADRAS						
1. The Vizagapatam Sugars & Refinery, Ltd., Anakapalle, M/A. Messrs Kantilal Vasantlal & Co., Ltd., Bombay.	Anakapalle. (Tel. "Sugars" Anakapalle.)	Vizagapatam.	Anakapalle, M. & S.M.Rly.	Vizagapatam.	200	DS
2. Etikoppaka Sugar Factory, M/A. The Etikoppaka Co-operative, Agricultural & Industrial Society, Ltd., (Tel. Sugar Factory, Etikoppaka, *Via* Narsipatam Road.)	Etikoppaka.	Do.	Narasipatam Road, Do.	Do.	75	DS
3. The Sri Rama Sugar Mills, Ltd., Prop.: Raja of Bobbili, Raja of Venkatagiri and Others, Bobbili. (Tel. Sugar, Bobbili.)	Bobbili.	Do.	Bobbili, B.N.R.	...	150	DS
4. The Sri Ram Sugar Mills, Ltd., Seetanagaram.	Seetanagaram.	Do.	Seetanagaram, Do.	...	300	DS
5. The K. C. P. Ltd., Proprietors of Vuyyuru Sugar Factory. (Tel. "Krushna", Vuyyuru.)	Vuyyuru.	Kistna.	Bezwada, M. & S.M.Rly.	...	850/1000	DS

6.	The Kirlampudi Sugar Mills Ltd., M/A. Messrs. K. V. Subbarao and Company, 99-A, Armenian Street, George Town, Madras. Tele { Grams: Mechelec, Madras. Tele { Phone: Mad. 3006.	Kirlampudi.	East Godavari.	Samalkot,	Do.	...	120	DS
7.	The Deccan Sugar and Abkari Co., Ltd., M/A. Parry & Co., Ltd., P. B. No. 12, Madras. Tele { Grams: Parry, Madras. Tele { Phone: Madras 2983.	Samalkot. (Tel. Deccan, Samalkot.)	Do.	Samalkot,	Do.	Cocanada.	Gur CHAR only 40 tons. 250 (Cane).	S
8.	The East India Distilleries and Sugar Factories, Ltd., M/A. Parry & Co., Ltd., P. B. No. 12, Madras. Tele { Grams: Perry, Madras. Tele { Phone: Madras 2983.	Nellikuppam. (Tel. Distimulo, Nellikuppam.)	South Arcot.	Nellikuppam,	S.I.R.	Cuddalore.	2200*	DS
9.	The India Sugar and Refineries, Ltd., Chairman, Board of Directors: Rao Saheb V. S. Tiruvengadaswamy Mudaliar. Managing. Directors: (1) Mr. Rukn-ul-Mulk S. Abdul Wajid, B.A., (2) Rao Saheb A. D. Tandu Mudaliar,	Hospet. (Tel. Sugars, Hospet.)	Bellary.	Hospet,	M.&S.M.Rly.	...	600	DS
10.	Coimbatore Co-operative Sugar Manufacturing Society, Ltd., Hony. Secretary: Mr. V. Rangasami Naidu.	Podanur.	Coimbatore.	Podanur,	S.I.R.	...	50	
11.	†Al. Vr. St. Sugar Mills & Distillery, Prop.: Al. Vr. St. Veerappa Chettiar, Zamindar of Thevaram, Devakottai.	Tachanallur. (Tel. Sugarmill, Tirunelveli Ind.)	Tinnevelly.	Tinnevelly Jn.	Do.	Tuticorin.	Gur only 16 (Palmyra Jaggery.)	

	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
12.	T. A. Rm. Lakshmi Sugar Mills, Alvartirunagari. (Tel. Luxmi Sugar, Alvartirunagari.) Pro. Mr. D. Kumarasamy, Tinnevelly.	Near Laksmanatope.)	Tinnevelly.	Alvartirunagari.	Tuticorin.	Gur only 6 (Palmyra Jaggery.)	
13.	The Murugappa Sugar Co., Ltd., Mailpatti (N. Arcot.)	Mailpatti.	N. Arcot.	Mailpatti, M.S.M.Ry.	Madras.	Cane 75 Gur 10 (Cane and Palmyra Jaggery.)	
14.	The Deccan Sugar & Abkari Co., Ltd., Pugalur Sugar Factory, M/A. Parry & Co., Ltd., P. B. No. 12, Madras. Tele { Grams: Parry, Madras. Phone: Madras 2983.	Murugappapuram, Pugalur Sugar Factory, P. O.	Trichinopoly.	Pugalur, S.I.Ry.	Madras.	200	S

BOMBAY

	Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
1.	The Saswad Mali Sugar Factory, Ltd., Head Office: P. O. Malinagar. M/D. H. B. Girme, Esq., Bombay Office: Sir Vithaldas Chambers, 16, Apollo Street, Fort, Bombay. Tele { Grams: Malisugar, Bombay. Phone: Bombay 20134.	P. O. Malinagar. (Tel. Malisugar, Akluj.)	Sholapur.	{ Kurduwadi, G.I.P.Ry. Pandharpur, B. L. Ry.	...	450/500	DS
2.	The Brihan Maharashtra Sugar Syndicate, Ltd., M/A. C. G. Agashe & Co., Commonwealth Building, 980, Sadashiv, Laxmi Road, Poona 2. Tele { Grams: Shree, Poona and Akluj. Phone: 9—138.	Borgaon.	Do.	Pandharpur, B.L.R.	...	300/350	DS

3.	Walchandnagar Sugar Works, of Walchandnagar Industries Ltd., M/A. The Premier Construction Co., Ltd., Construction House, Ballard Estate, Bombay. Tele { Grams: Walsakhar, Bombay. Tele { Phone: Bombay 26036, 37, 38 & 39.	P. O. Walchand-nagar (Dt. Poona). (Tel. Walsakhar, Baramati and Walsakhar, Diksal.)	Poona.	Baramati, Diksal,	D.B.R. G.I.P.R.	Bombay.	1200	DS
4.	The Ravalgaon Sugar Farm, Ltd., M/A. Walchand & Co., Ltd., Construction House, Ballard Estate, Bombay. Tele { Grams: Rasufald, Bombay. Tele { Phone: Bombay, 26036, 37, 38 & 39.	Ravalgaon, Nasik. (Tel. Rasufald, Malegaon Camp.)	Nasik.	Manmad,	Do.	Do.	600	DS
5.	The Belapur Co., Ltd., Managers: W. H. Brady & Co., Ltd., Royal Insurance Building, Churchgate Street, Fort, Bombay. Tele { Grams: Brix, Bombay. Tele { Phone: Bombay 25037.	Harigaon. (Tel. Belapur Company, Belapur Road.)	Ahmednagar.	Belapur,	Do.	Do.	1000	DS
6.	The Maharashtra Sugar Mills, Ltd., M/A. M. L. Dahanukar & Co., Ltd., Industrial Assurance Building, 3rd Floor, Opposite Churchgate Station, Fort, Bombay. Tele { Grams: Sugarmills, Bombay. Tele { Phone: Bombay 30825.	P. O. Tilaknagar, Belapur Rd. (Tel. Sugarmills, Bela-pur Rd. Phone; Belapur Rd. P. C. O. Extension.)	Do.	Belapur,	Do.	Bombay.	1000/1200	DS
7.	The Belvandi Sugar Farm, Ltd., M/A. M. L. Dahanukar & Co., Ltd., Industrial Assurance Building, 3rd Floor, Opposite Churchgate Station, Fort, Bombay. Tele { Grams: Design, Bombay. Tele { Phone: Bombay 30825.	P. O. Belvandi Sugar Farm. (Tel. Sugarfarm, Belvandi, G. I. P. R.)	Do.	Belvandi,	Do.	Do.	250/300	DS

Name of Factory, with full name and address of Managing Agents or Proprietors	Location	District	Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
8. The Godavari Sugar Mills, Ltd., M/A. K. J. Somaiya & Sons, Fazalbhoy Building, Mahatma Gandhi Road, Fort, Bombay. Tele { Grams: Manikaka, Bombay. Phone: Bombay 31921.	Sakarwadi.	Ahmednagar.	Kanhegaon, G.I.P.R.	...	750/800.	DS
9. The Somaiya Sugar Factory, Controlled by Godavari Sugar Mills Ltd., M/A. K. J. Somaiya & Sons, Fazalbhoy Bldg., M. G. Road., Fort, Bombay. Tele { Grams: Manikaka, Bombay. Phone: Bombay 31921.	Laxmiwadi *Via* Kopergaon.	Do.	Kopergaon, Do.	...	700/750.	DS
10. Shree Changdeo Sugar Mills, Ltd. M/A. Messrs. A. H. Bhiwandiwala & Co., 32, Apollo Street, Fort, Bombay. (Tele. Jaysugar, Bombay.)	P. O. Changdeo Sugar Factory (Tel. Sugarmills, Puntamba, G. I. P. R.)	Do.	Puntamba, Do.	Bombay.	350	DS

N. W. F. PROVINCE

1. The Frontier Sugar Mills & Distillery, Ltd., Tele { Grams: Sugar Mills, Takht-i-Bhai. Phone: 27.	Takht-i-Bhai.	Mardan.	Takht-i-Bhai.	...	400	DC/S

INDIAN STATES

(Kashmir)

		State				
1. Shree Yuvraj Sugar Mills, Ltd., M/A. M/s. Karam Chand Thapar & Bros., (Jammu & Kashmir) Ltd., Ranbirsinghpura.	Ranbirsinghpura, N. W. Rly.	Jammu & Kashmir State.	Ranbirsingh- pura, N. W. R.	Karachi.	600	DS

(Punjab)

2.	Jagatjit Sugar Mills Co., Ltd., M/A. Narang Bros. & Co., Ltd., 3, Montgomery Road, Lahore. Tele { Grams: Narang, Lahore. Phone: Lahore 4614.	Phagwara. (Tel. Sugar Factory, Phagwara. Telephone: Phagwara 101.)	Kapurthala State.	Phagwara,	Do.	Do.	800	DC
3.	The Mahalaxmi Sugar Mills Co., Ltd., The Paramjit Sugar Factory, Tele { Grams: Sugar, Hamira. Phone: Kapurthala 50.	Hamira, P. O. (Kapurthala, State.)	Kapurthala State.	Hamira,	Do.	Do.	1800	DC/DS

(United Provinces)

4.	Raza Sugar Co., Ltd., M/A. Govan Bros. (Rampur), Ltd., Rampur State. (Telephone: 291).	Rampur. (Tel. Razaco, Rampur, State. Tele: 332.)	Rampur State.	Rampur,	E. I. R.	Buxar.	1100	DS
5.	Buland Sugar Co., Ltd., M/A. Govan Bros. (Rampur), Ltd., Rampur State. (Telephone: 291).	Rampur. (Tel. Buland, Rampur State. Tele: 276.)	Rampur State.	Do.	Do.	Do.	1100	DC

(Travancore)

6.	The Travancore Sugars & Chemicals, Ltd., Secretaries & Treasurers: Parry & Co., Ltd., P. B. No. 12, Madras. Tele { Grams: Parry, Madras. Phone: Madras 2983.	Thuckalay. (Tel. Sugars, Thuckalay. Telephone: Trivandrum 280.)	Travancore State.	Trivandrum,	S. I. R.	Trivandrum.	Gur only 18 (Palmyra Jaggery.)	

(Mysore)

7	Mysore Sugar Co., Ltd., H. O. Sri Jayachamaraja Wadiyar Road, Bangalore City. Tele { Grams: Mysugar, Bangalore. Phone: 2133.	Mandya. (Tel. Mysugar, Mandya.)	Mysore State.	Mandya,	M. S. R.	...	1400	DS

M. L. D. LIBRARY MADRAS

No.	Name of Factory, with full name and address of Managing Agents or Proprietors	Location		Nearest Railway Station	Nearest Steamer Station	Daily cane-crushing capacity (tons)	
	(Bombay)						
8.	The Kolhapur Sugar Mills, M/A. The United Agencies, Ltd., Laxmipuri, Kolhapur. Tele { Grams: Sugarmills. Phone: 298 (Kolhapur).	Kolhapur. (Tel. Sugar Mills.)	Kolhapur. State.	Kolhapur, M. & S. M. Rly.	Bombay.	500	DS
9.	The Phaltan Sugar Works, Ltd., M/A. Mafatlal, Apte & Kantilal, Ltd., Sakharwadi, Satara.	Sakharwadi, Phaltan State. (Tel. Sakhar, Phaltan.)	Phaltan State.	Nira Do.	Bombay.	625 650	DS
10.	Krishna Sugar Mills, Ltd., M/A. M/S. Vinchurkar & Co., Krishna Kittur, *Via* Kudchi, Dist. Belgaum. (Tele. Krishna Sugar, Kudchi.)	Kittur.	Miraj Jr. State.	Kudchi, Do. Shedbal, Do.	Bombay.	200	DS
11.	The Ugar Sugar Works, Ltd., Messrs. Shirgaokar Bros., Managing Agents, Kolhapur, Shahupuri.	Ugar Khurd.	Sangli State.	Ugar Khurd, M.S.M.R.	Mormugoa Harbour.	500	DS
	(Central India)						
12.	The Jaora Sugar Mills, Prop.: Nandlal Govindram, Jaora, C. I. (Telegram: Sugar, Jaora.)	Jaora.	Jaora State.	Jaora, B. B. & C. I. Rly.	Bombay.	600	DS
13.	Bhopal State Sugar Industries, Ltd., M/A. M/S. A. H. Bhivandiwala & Co., Sehore.	Sehore.	Bhopal State.	Sehore, G. I. P. Rly.	...	750	DS
14.	Shri Lakshmi Narayan Sugar Works, Ltd., M/A. M. D. Singh & Co., 20, Garden Reach Road, Calcutta.	Harpalpur. (Tel. Laxmichini, Harpalpur.)	Alipura State.	Harpalpur, G. I. P. Rly.	...	100	S

15. The Gwalior Sugar & Co., Ltd., Dabra (Gwalior), M/A. Govan Brothers, Ltd., Scindia House, New Delhi.	Dabra (Tel. Sugar, Dabra).	Gwalior State.	Dabra, G. I. P. Rly.	...	750	DC & DS
16. †The Jiwaji Rao Sugar Co., Ltd., M/A. M/S. Shapoorji Pallonji (Gwalior) Ltd., Gwalior.	Dalauda	Mandsaur.	Dalauda B. B. & C. I.	Bombay.	500	
17.‡ Maharani Parbati Sugar Mills, Ltd., (Tel. Sugarmills, Sarangpur.)	P. O. & Tel. Office Sarangpur.	Devas State, J. B.	Bercha, G.I.P.R.	...	100	
18. ‡Ratlam Sugar Mills Co., Ltd., M/A. Sir Gokulchand Narang & Sons.	Ratlam.	Ratlam State.	Ratlam, B. B. & C. I. Rly.	...	500	
19. †Seth Govindram Sugar Mills, Prop.: Seth Nandlalji Bachulalji.	Mahidpur Road.	Holkar State.	Mahidpur Road, B. B. & C. I. Rly.	Bombay	300	DS
	(Rajputana)					
20. †The Bikaner Industrial Corporation, Ltd., M/A. The Podar Bapna Ltd.,	Sri Ganganagar	Bikaner State.	Sri Ganganagar B. K. S. Ry.	...	600	DS
21. The Mewar Sugar Mills, Ltd., M/A. Dhandhania Kedia & Co., Bhupalsagar (Udaipur State).	Bhupalsagar. (Tel. Sugarmill.)	Udaipur State.	Bhupalsagar Me. S. R.	Bombay	300	DS
	(Hyderabad)					
22. The Nizam Sugar Factory, Ltd., M/A. H. E. H. The Nizam's Industrial Trust Fund, Represented by the Hyderabad Construction Co., Ltd., Abid Road, Hyderabad (Deccan). Telephone: Hyderabad (Deccan). 2766.	Shakarnagar. (Tel. Sugar.)	Hyderabad State.	Shakarnagar Station Nizam St. Rly.	...	1300/1500	DS

LIBRARY

Name of Factory, with full name and address of Managing Agents or Proprietors	*Location*	*State*	*Nearest Railway Station*	*Nearest Steamer Station*	*Daily cane-crushing capacity (tons)*	
23. †The Salar Jung Sugar Mills Ltd., Hyderabad (Deccan).	Munirabad.	Hyderabad State.	Munirabad M. & S. M. S.	...	300/400	DS
(Bhavnagar)						
24. Dhola Sugar Mills, M/A. N. P. Deliwalla & Sons., Bhavnagar.	Dhola.	Bhavnagar.	Dhola (B. S. Rly.)	Bhavnagar.	350	
BURMA						
1. †The Sahmaw Sugar Factory of the Burma Sugar Co., Ltd., (Tel. Colberfeld, Rangoon.)	Sahmaw. (Tel. Shortis, Sahmaw.)	District Myitkyina.	Sahmaw, Burma Rly.	...	900	DS
2. †New Burma Amrit Sugar Mills, Ltd., M/A. Amritlal Ojha & Co. (Burma) Ltd., 619, Merchant Street, Rangoon. (Tel. Ojhaco, Rangoon.)	Hninpale. P. O. Bilin. (Tel. Amrit Sugar Works.)	Thaton (L. Burma.)	Hninpale. Do.	...	400	DS
3. †*The Zeyawadi Sugar Factory, Ltd., M/D. Chandradeva Prakash Sinha, Esq., Zeyawadi (Burma). (Tel. Prakash, Rangoon.)	Zeyawadi. (Tel. Sugar, Zeyawadi.)	Toungoo.	Zeyawadi.	Rangoon.	1000/1200	DS

* This factory worked in 1945-46.

N.B.—This list is being continuously brought up-to-date. If you have any alterations to suggest, please write to us at once.

GANDHI & CO. (*Publishers*)

PROVINCIAL DISTRIBUTION
OF
SUGAR MILLS & GUR REFINERIES IN INDIA
(1945-46)

Province	Cane Factories.	Gur Refineries only	TOTAL
Bengal	9	...	9
Bihar	31	1	32
United Provinces	73	2	75
Punjab	3	1	4
Orissa	2	...	2
Madras	12	2	14
Bombay	10	...	10
N. W. F. P.	1	...	1
Indian States	22	1	23
TOTAL ...	163	7	170
Burma	3	...	3

No. of Factories (including Gur Refineries) actually working in the season 1944–45 was about ... 146

No. of Factories (including Gur Refineries) that did not work during the season 1944–45 (Factories under construction included) 25

FURTHER DEVELOPMENT OF SUGAR INDUSTRY

The Government of India, are reported to have given approval for establishing 5 units of the industry, one each at Travancore, Hyderabad, Baroda, North-West Frontier Province and Bihar. The Post-War Sugar Panel Committee is reported to have recommended (1946) that permission should be given for 15 additional units as follows to meet with the increased requirements of sugar estimated 15½ lakhs tons, by 1950 :—

Provinces and States.	No. of Units.
Madras and Mysore	3
Bombay and Deccan States	4
Punjab and Punjab States	3
Assam	1
Orissa	1
Sind	1
Bengal	2
Total ...	15

(For Details, please refer to the *Annual*)

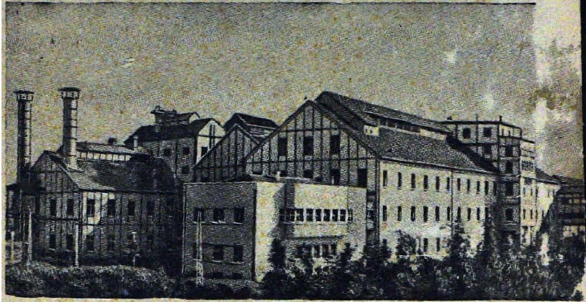
31st August 1946.

M. P. GANDHI.

M. L. D. S. LIBRARY MADRAS

7491

SUGAR-FACTORIES



Complete Equipment for the Production of raw sugar, white sugar and refined sugar. Reconstructions of old factories, Supply of individual machines and apparatus. Advice on all sugar-technical questions and on heat economy.

BUCKAU R. WOLF
GREVENBROICH-NIEDERRHEIN

PROTOS ENGINEERING COMPANY LIMITED

BOMBAY	DELHI	CALCUTTA	MADRAS
173, JAMSHEDJI TATA ROAD	3, HANUMAN ROAD	P-8, MISSION ROW EXTENSION	2nd LINE BEACH No. 7